

Brick Math Lesson of the Month

December 2021

Teacher's Lesson Guide pages

WHAT IS A NUMBER?

Students will learn/discover:

- How to identify a number and link it to an object
- Basic counting of natural numbers 1 to 10

Why is this important?

Being able to assign a quantity or value to a numerical digit is a precursor to understanding numbers. This skill leads to understanding quantities that are “more than” or “less than” given amounts.

Vocabulary:

- Counting numbers: the list of natural numbers used to name objects one by one
- One-to-one correspondence: assigning or matching one item to one other item, or assigning one number to each object
- Studs: the round “bumps” on LEGO® bricks that are used as the counting unit

How to use the companion student book, *Learning Counting and Cardinality with LEGO® Bricks*:

- After students build their models, have them draw the models and explain their thinking in the student book. 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 book.
- Use the assessment in the student book to gauge student understanding of the content.



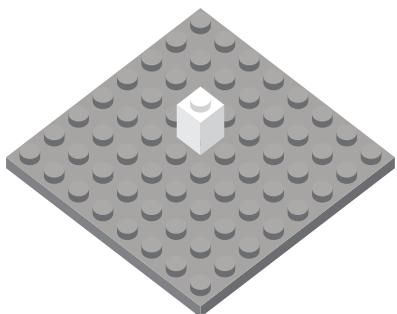
SUGGESTED BRICKS

Size	Number
1x1	40 (10 each of 4 different colors)

Note: Using a baseplate will help keep the bricks in a uniform line. Three small or one large baseplate is suggested for these activities.



Part 1: Show Them How



1. Place one 1x1 brick on a baseplate and display it to the students. *Note:* Use any color of 1x1 brick.

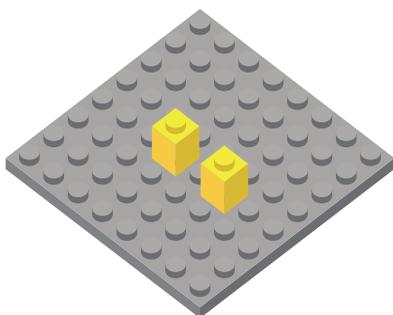
Ask students what they see. For this illustration, students should respond that they see one white brick.

Ask students how they know that the number represented is one. Answers may vary, but students should say that they can count only one stud, not simply one brick.

Discuss the brick vocabulary. Explain that the knobs on the top of the bricks are called *studs* and that the stud is the counting tool.

Have students place one finger on the top of the single stud and say “one stud.” If you are using a document camera to display your model, ask one student to come up to the camera and show the class. If you are not using a document camera, have each student build the model with bricks.

Discuss the vocabulary term *one-to-one correspondence*. Explain that it means assigning one value or one description to each number of items.



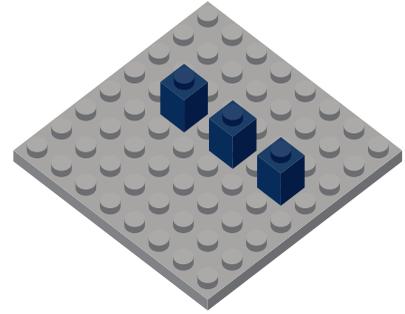
2. Place two 1x1 bricks on a baseplate and display the model to the students. *Note:* The two bricks should both be the same color. Use a different color from your model in step 1.

Have the students build the same model. Ask students to count and give a quantity for this model. For this illustration, students should respond, “two yellow studs” or “two yellow bricks.”

Ask students what they notice that is different between the first model and this model. Students should notice there is one more brick and stud than the first model, and that the colors of bricks in the two models are different. They should talk about both the colors and the number of bricks and studs.



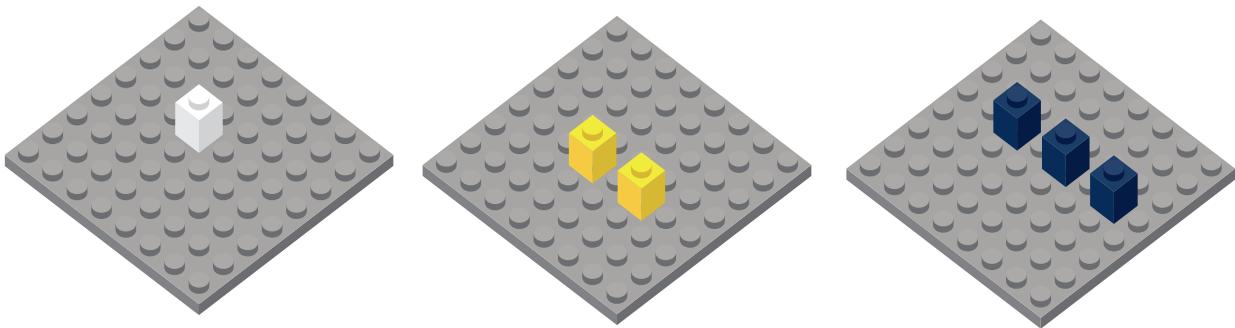
- 3.** Place three 1x1 bricks on a baseplate and display the model to the students. *Note:* These three bricks should all be the same color. Use a different color from your models in steps 1 and 2.



Have the students build the same model. Ask students how many studs they count on this model, and how this model is different from the previous model.

For this illustration, students should answer that there are three blue studs or bricks, with one more stud than on the previous model. Again, students should reference both color and number of studs and bricks in their answers.

- 4.** Show the three models side by side.

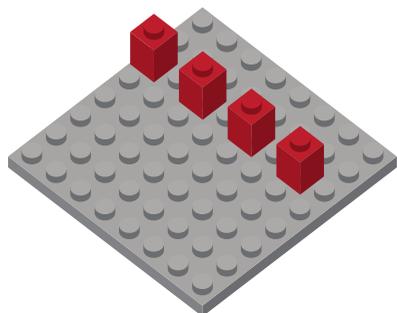


Ask students what they can say about these three models together.

Possible answers:

- Each model has one more than the one before it.
- The first model has 1 white stud, the second model has 2 yellow studs, and the third model has 3 blue studs.
- There is a space between each brick on the baseplates with two and three bricks.

Count the models in order based on the number of studs: 1 stud, 2 studs, 3 studs. *Note:* It is important to count using the frame of reference (studs), not the numerical digit alone.



5. Ask students what they think the next model should look like.

Have students each build a model. Students should use four 1x1 bricks and put a space between each one. The students should use a fourth color of bricks, and the bricks in this model should all be the same color. Have each student draw his/her model.

Ask students: “How many studs are in this model?”
Students should answer: “Four studs.”

Ask students if this model has more studs or fewer studs than the other models. Students should answer: “More studs.”

Have students say and write statements comparing the numbers of studs on each model.

Possible answers:

- The last model has one more than the model before it.
- The last model has two more than the second model.
- The last model has three more than the first model.
- All together there are 10 studs. (*Note:* This is an advanced answer and is not expected.)

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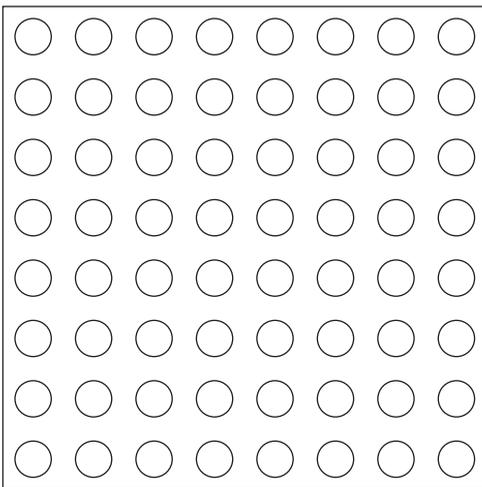


Student Workbook Pages

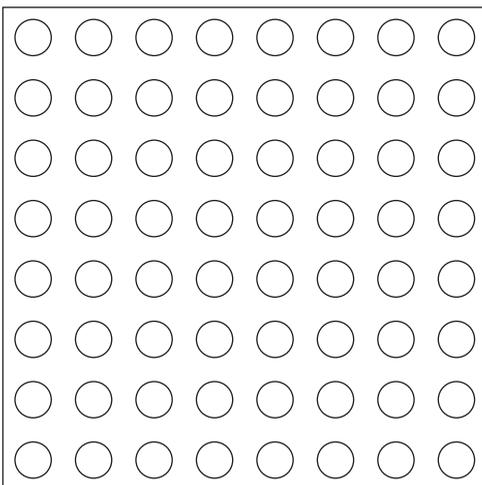
WHAT IS A NUMBER?

Part 1

1. Build a model that shows 1 single stud. Draw your model and describe it.

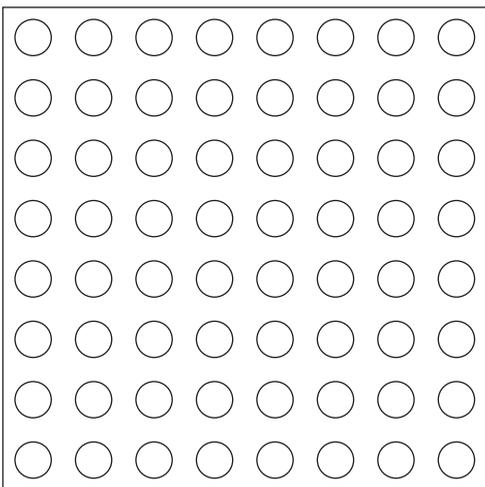


2. Using another color of bricks, build a model that shows 2 single studs. Draw your model and describe it.

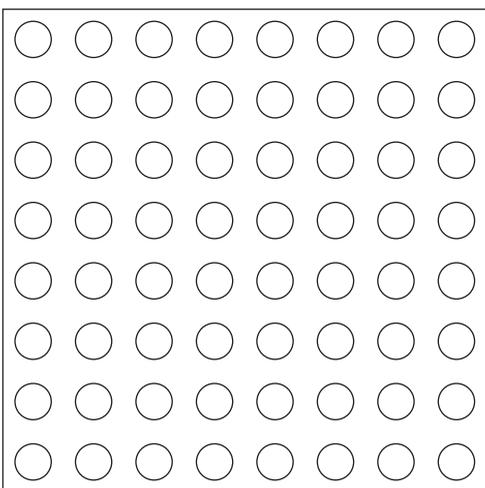




3. Using a third color of bricks, build a model that shows 3 single studs. Draw your model and describe it.



4. Place all three models side by side. Build a model that would be the next step in the pattern.



This model has _____ studs.

This model has *more* or *less* (circle one) studs than the model in problem 3.