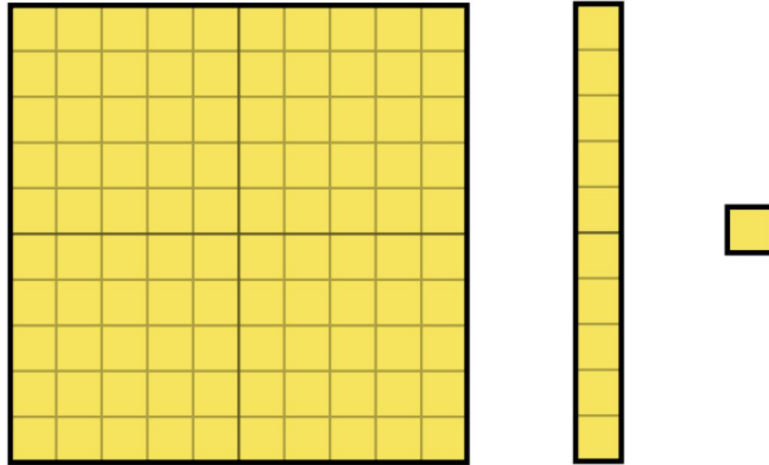


# **Base Ten Numeration**

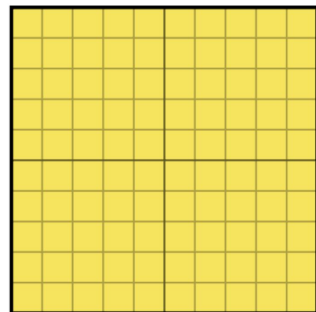
## **2D Base Ten Pieces**

Created by Nicole Rigelman (2025)

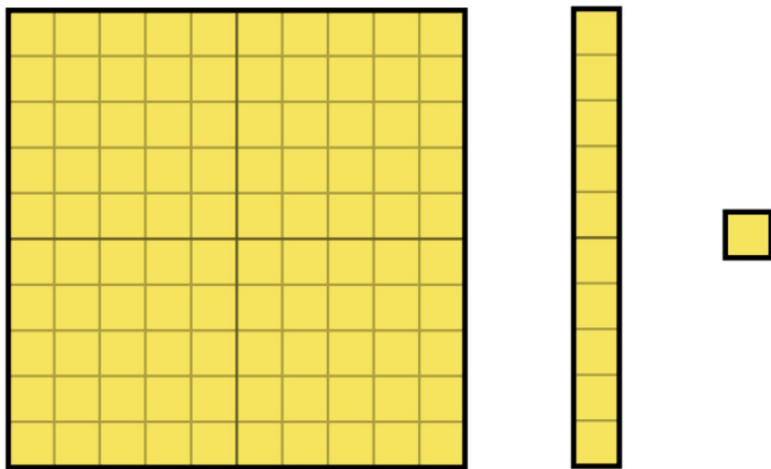
**What comes next? How do you know?**



| Dimensions<br><i>l</i> × <i>w</i> | # of Small<br>Squares | Value as products<br>of 10s & 1s | Exponent |
|-----------------------------------|-----------------------|----------------------------------|----------|
| 1 × 1                             | 1                     | $1 \times 1$                     | $10^0$   |
| 10 × 1                            | 10                    | $1 \times 10$                    | $10^1$   |
| 10 × 10                           | 100                   | $10 \times 10$                   | $10^2$   |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |

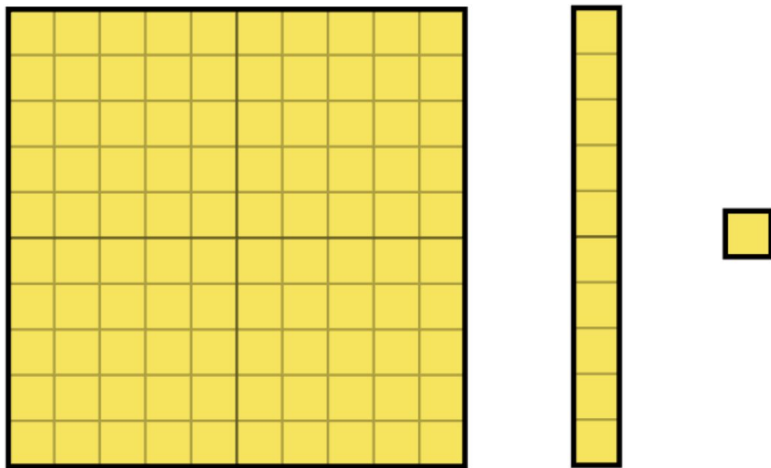


# What if this pattern goes in both directions?



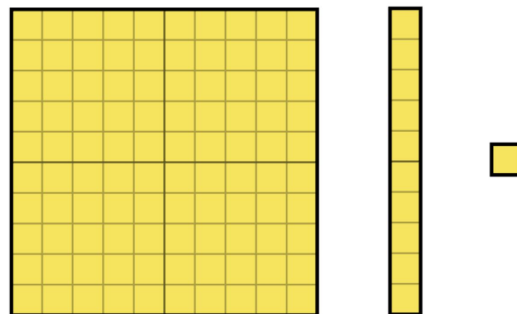
What can you say about both smaller and larger pieces?

# What if the mat is now the unit?



What can you say about the changes in dimensions and areas?

| Dimensions<br><i>l</i> × <i>w</i> | # of Small<br>Squares | Value as products<br>of 10s & 1s | Exponent |
|-----------------------------------|-----------------------|----------------------------------|----------|
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| 1 × 1                             | 1                     | $1 \times 1$                     | $10^0$   |
| 10 × 1                            | 10                    | $1 \times 10$                    | $10^1$   |
| 10 × 10                           | 100                   | $10 \times 10$                   | $10^2$   |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |
| ×                                 |                       |                                  |          |

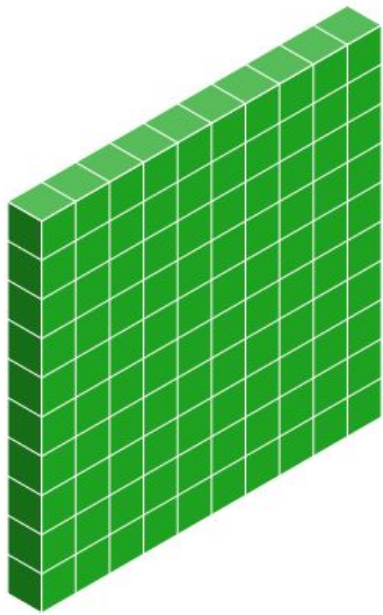


# **Base Ten Numeration**

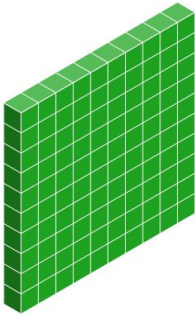
## **3D Base Ten Pieces**

Created by Nicole Rigelman (2025)

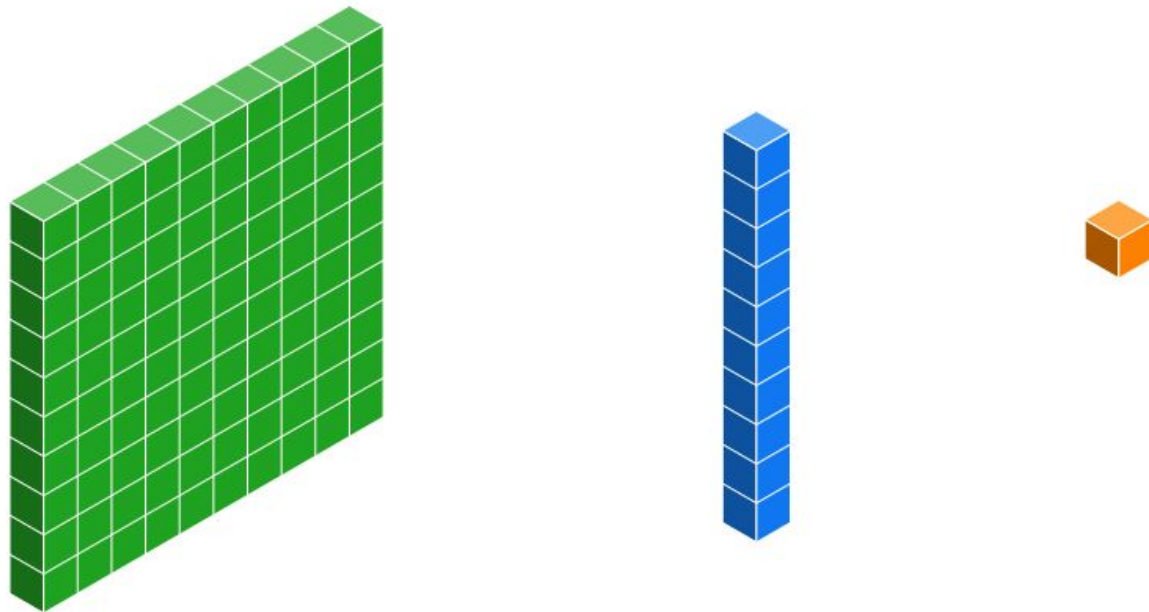
# What comes next? How do you know?



| Dimensions<br>$l \times w \times h$ |   |    |   |    | # of Small Cubes | Value as products of 10s & 1s | Exponent |
|-------------------------------------|---|----|---|----|------------------|-------------------------------|----------|
| 1                                   | × | 1  | × | 1  | 1                | $1 \times 1 \times 1$         | $10^0$   |
| 1                                   | × | 1  | × | 10 | 10               | $1 \times 1 \times 10$        | $10^1$   |
| 1                                   | × | 10 | × | 10 | 100              | $1 \times 10 \times 10$       | $10^2$   |
|                                     | × |    | × |    |                  |                               |          |
|                                     | × |    | × |    |                  |                               |          |
|                                     | × |    | × |    |                  |                               |          |
|                                     | × |    | × |    |                  |                               |          |
|                                     | × |    | × |    |                  |                               |          |
|                                     | × |    | × |    |                  |                               |          |

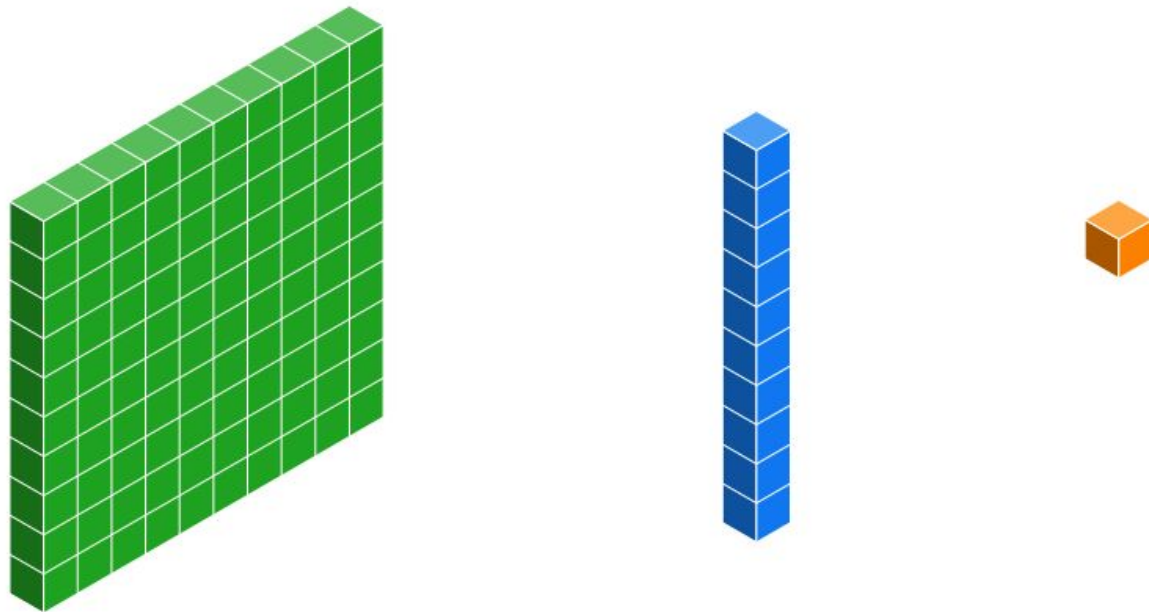


# What if this pattern goes in both directions?



What can you say about both smaller and larger pieces?

# What if the flat is now the unit?



What can you say about the changes in dimensions and areas?

| <div> <div>Dimensions</div> <div><math>l \times w \times h</math></div> </div> |   |    |   |    | # of Small Cubes | Value as products of 10s & 1s | Exponent |
|--------------------------------------------------------------------------------|---|----|---|----|------------------|-------------------------------|----------|
| <div> <div>×</div> <div>×</div> </div>                                         |   |    |   |    |                  |                               |          |
| <div> <div>×</div> <div>×</div> </div>                                         |   |    |   |    |                  |                               |          |
| <div> <div>×</div> <div>×</div> </div>                                         |   |    |   |    |                  |                               |          |
| 1                                                                              | × | 1  | × | 1  | 1                | $1 \times 1 \times 1$         | $10^0$   |
| 1                                                                              | × | 1  | × | 10 | 10               | $1 \times 1 \times 10$        | $10^1$   |
| 1                                                                              | × | 10 | × | 10 | 100              | $1 \times 10 \times 10$       | $10^2$   |
| <div> <div>×</div> <div>×</div> </div>                                         |   |    |   |    |                  |                               |          |
| <div> <div>×</div> <div>×</div> </div>                                         |   |    |   |    |                  |                               |          |
| <div> <div>×</div> <div>×</div> </div>                                         |   |    |   |    |                  |                               |          |

