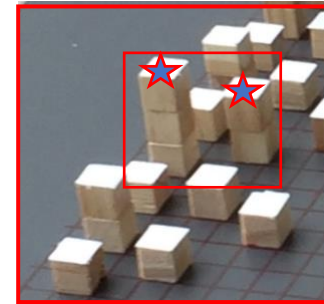
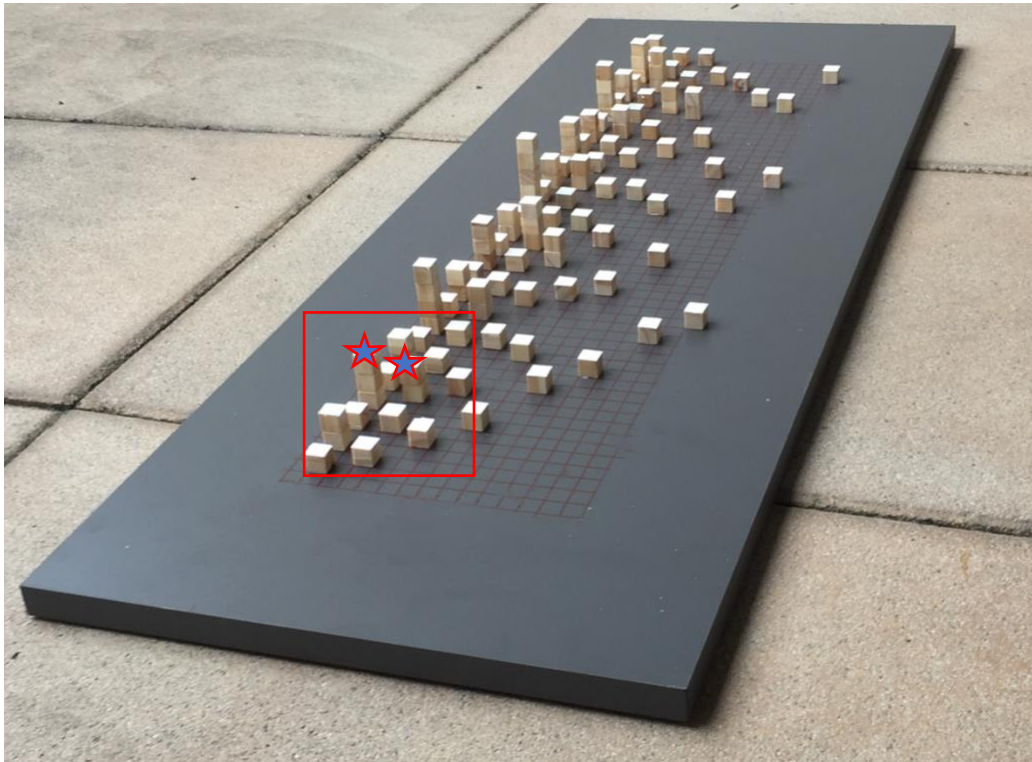


8 and 9

We zoom in on the pair of blocks in consecutive positions 8 and 9. We have a tower of 3 cubes for 8 because $8 = 2^3$, and a tower of 2 cubes for 9 because $9 = 3^2$. What was long thought to be true but only proved so in 2002 is a remarkable fact: *8 and 9 are the only consecutive numbers which are both pure powers of a prime*, (powers of 2 or greater).



Here are some power pairs which are not consecutive but close. *Which can't you find on the model?*

$$3^3 - 5^2 = 2$$

$$2^7 - 5^3 = 3$$

$$2^3 - 2^2 = 4$$

$$3^2 - 2^2 = 5$$

$$2^5 - 3^3 = 5$$

$$2^4 - 3^2 = 7$$

$$2^5 - 5^2 = 7$$

Find more of your own. (None differ by 6 !)