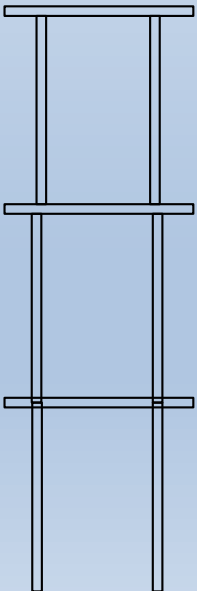


Strongest Strongholds Assessment

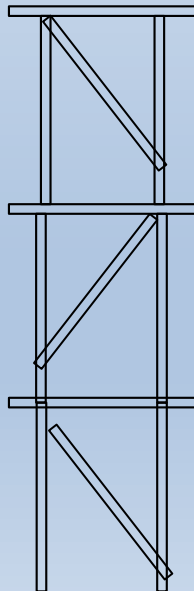
Question 1

Which tower is likely to hold more weight? Explain.

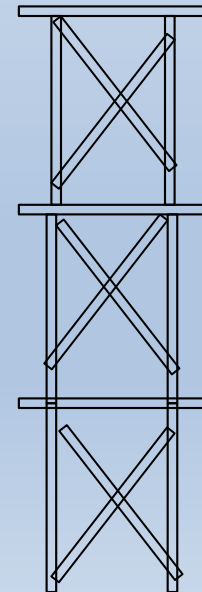
Tower A



Tower B

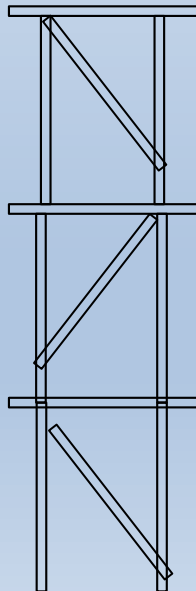


Tower C



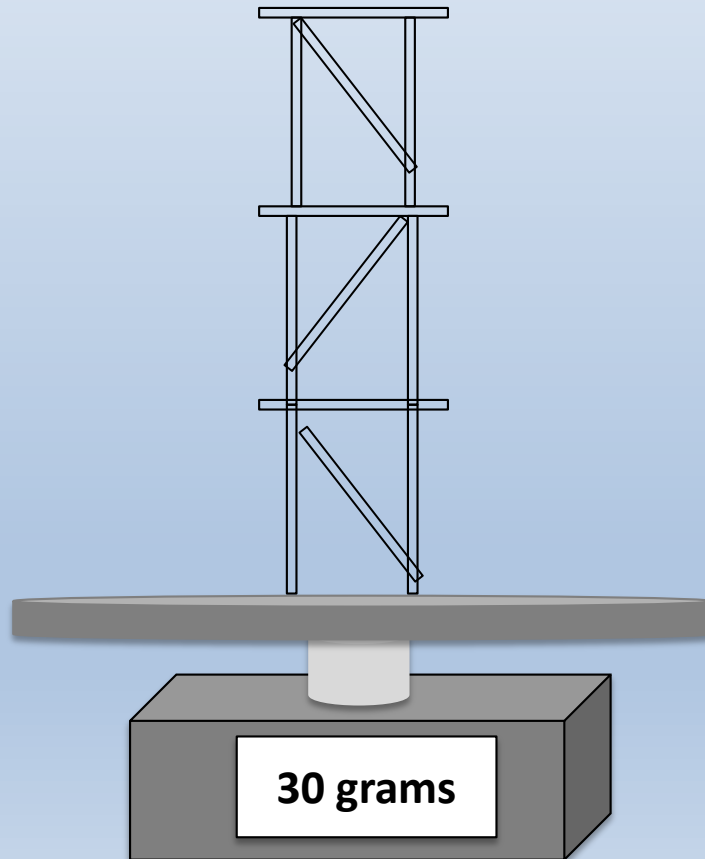
Question 2

What can be done to improve the weight-bearing nature of this tower?



Question 3

If this tower can hold 3 books, what is its current strength-to-weight ratio?

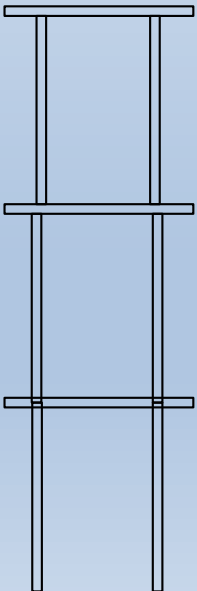


Question 1 – answer key

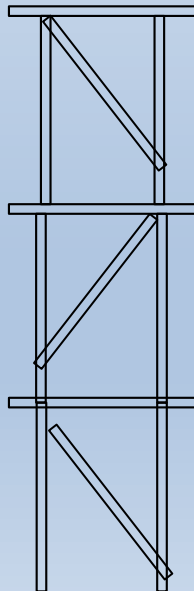
Which tower is likely to hold more weight? Explain.

Answer: Tower C is likely to hold the most weight. The tower utilizes several cross beams to more evenly distribute load across the structure. This is a better design than tower B, since load is distributed more evenly across each tower subsection.

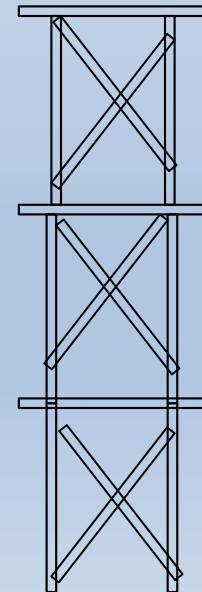
Tower A



Tower B



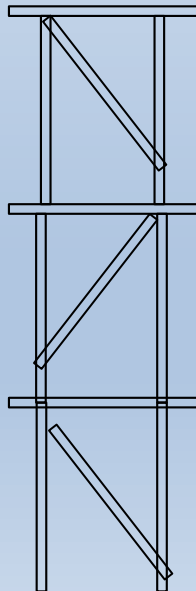
Tower C



Question 2 – answer key

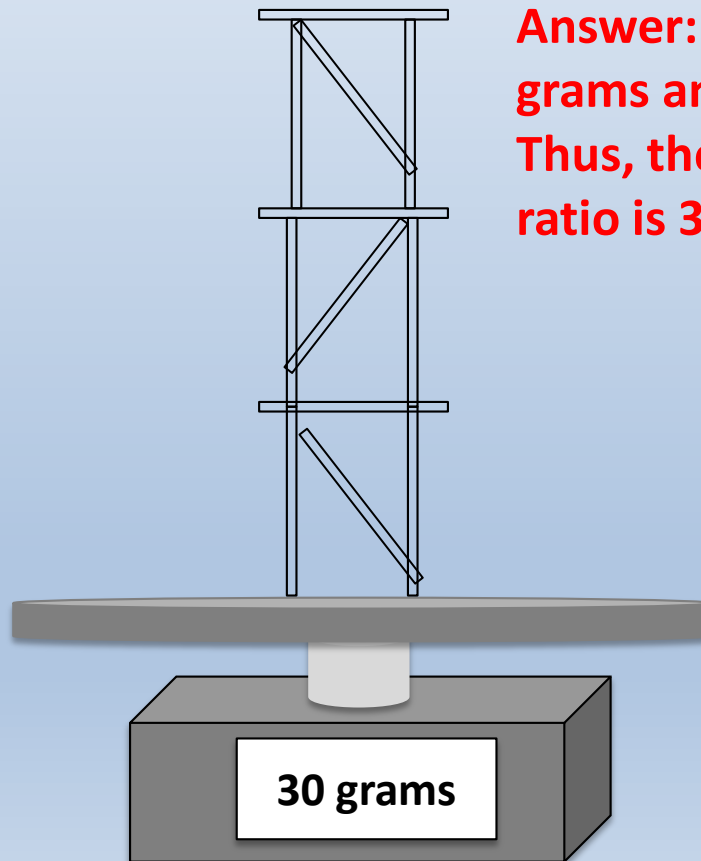
What can be done to improve the weight-bearing nature of this tower?

Answer: Add additional cross beams into tower B to more evenly distribute load. Additionally, straw “bundling,” stacking of straws, can be done to improve the weight-bearing nature of any single section of the tower. It is also unclear if any cross beams exist at the interface points between each section, which would further improve tower stability.



Question 3 – answer key

If this tower can hold 3 books, what is its current strength-to-weight ratio?



Answer: The tower weighs 30 grams and can hold 3 books. Thus, the strength-to-weight ratio is $3/30$, or 1:10