

Unit 7 Lesson 12: Applications of Arithmetic with Powers of 10

1 What Information Do You Need? (Warm up)

Student Task Statement

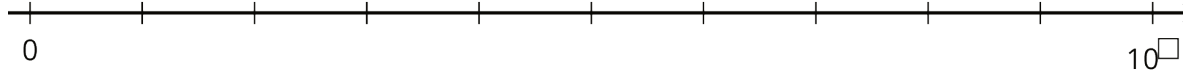
What information would you need to answer these questions?

1. How many meter sticks does it take to equal the mass of the Moon?
2. If all of these meter sticks were lined up end to end, would they reach the Moon?

2 Meter Sticks to the Moon

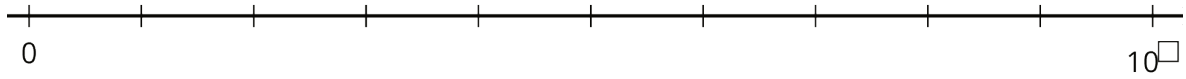
Student Task Statement

1. How many meter sticks does it take to equal the mass of the Moon? Explain or show your reasoning.
2. Label the number line and plot your answer for the number of meter sticks.



3. If you took all the meter sticks from the last question and lined them up end to end, will they reach the Moon? Will they reach beyond the Moon? If yes, how many times farther will they reach? Explain your reasoning.

4. One light year is approximately 10^{16} meters. How many light years away would the meter sticks reach? Label the number line and plot your answer.



3 That's a Tall Stack of Cash (Optional)

Student Task Statement

In 2016, the Burj Khalifa was the tallest building in the world. It was very expensive to build.

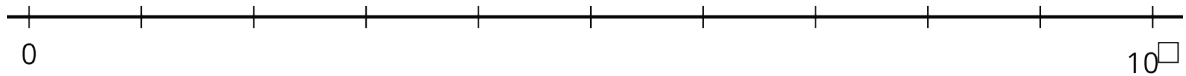
Consider the question: Which is taller, the Burj Khalifa or a stack of the money it cost to build the Burj Khalifa?

1. What information would you need to be able to solve the problem?

2. Record the information your teacher shares with the class.

3. Answer the question “Which is taller, the Burj Khalifa or a stack of the money it cost to build the Burj Khalifa?” and explain or show your reasoning.

4. Decide what power of 10 to use to label the rightmost tick mark of the number line, and plot the height of the stack of money and the height of the Burj Khalifa.



5. Which has more mass, the Burj Khalifa or the mass of the pennies it cost to build the Burj Khalifa? What information do you need to answer this?

6. Decide what power of 10 to use to label the rightmost tick mark of the number line, and plot the mass of the Burj Khalifa and the mass of the pennies it cost to build the Burj Khalifa.

