

Ant Power

Name(s): _____ Period: _____ Date: _____

What is the strongest living creature on Earth?

It may be hard to believe, but ants are actually the strongest living land creature based on the ratio between their weight and power.

Ants can lift between 20 and 100 times their own weight.

Read the following facts about ants.

Ant Facts:

- Estimated that 10^{16} ants live on Earth.
- Average weight of an ant is 2.5 milligrams.



Ants often work together to lift very heavy objects.



But, is it possible for all of the ants in the world to work together and lift the weight of the Earth?

Your task is to work as a team to answer the following questions and decide if it is possible for the world ant population to lift the weight of the Earth.

1. Complete the sentence below to identify the range of weight a single ant can carry.

➤ A single ant can carry between _____ and _____ milligrams.

How many **kilograms** can a single ant carry? Write each value in **scientific notation**.

➤ A single ant can carry between _____ and _____ **kilograms**.

2. Using estimation, identify two items that a single ant can probably carry.

Item 1: _____

Item 2: _____

Explain how you know a single ant can carry each item.

4. What is the difference in weight, in kilograms, between the two **heaviest** items in Table 1?

_____ kilograms

5. How many ants would it take to lift one African Elephant? Justify your answer.

6. Assume **all** the ants on Earth work together.

They want to demonstrate their collective power by lifting each item in Table 1.

The items are lifted one at a time.

Which items can the ants lift?

Justify your answer.

7. As a team, decide if it is possible for the current ant population to lift the weight of the Earth. Justify your decision. As part of your justification, tell how many ants are needed to lift the weight of the Earth (5.972×10^{24} kg).