



### Scales of Nature: *From Micro to Macro*

Every year, more and more teams join the Global Natural History Day family. They all ask the same question: *what exactly is nature?*

Nature is the world around us, and that world keeps moving, changing, and developing. From a small particle to the entire universe, it includes everything and anything that is both known and unknown to human beings.



*How big can the universe really be?* The infinitesimal atom is considered the basic and fundamental element that makes the world. When examined closer, you may find the world that we are living in is beautiful: *materials in different sizes, measurements and scales shape this magic world.* You can image that nature is a world pieced together by countless building blocks in different units with each having its own special role and function. Different combinations and compositions will result in unexpected or unimagined miracles. Even the largest planets and stars are made of the same pieces of matter that are in the soil, the dirt, and you. With this phenomena in mind, the theme for the 2017 GNHD was born, *Scales of Nature: From Micro to Macro.*



The blue whale is the largest animal ever known to have existed on Earth. Its body length ranges from 20 to 34 meters while its weight from 150 to 200 tons. In another word, its weight is more than 25 African elephants or 2,000 people!



Krill is a tiny marine crustacean, being only 8-60 millimeters long. They are blue whales' source of food. A blue whale reaches those mind-boggling dimensions in length and weight on a diet of the tiny krill. What ecological patterns in nature can be revealed by such an amazing combination of the big and the small?

Sometimes, some organisms are so tiny that we ignore their importance. However, we live in a world dependent on them to stay in balance. For example, one of them is the diatom. Diatoms are a type of plankton algae and can be found in oceans and freshwater. Most diatoms lives in open waters, but some can live under the seabed, and some can only survive and live in the humid air environment.



Unlike the diatom's abundance in number and type, its size only ranges from one-thousandth of a millimeter to two millimeters. The largest diatom is barely bigger than the period at the end of this sentence.

Do not ignore the diatom because of its tiny size. When a number of diatoms gather together, they can become one the most important species in the food chain. What is more, they produce oxygen, which is essential for humankind. The plankton produces 36 billion tons of oxygen each year, more than 70 percent of oxygen on the Earth.

The key factors behind the material world pertain to size and scale. We wonder how beautiful nature is with both the micro and the macro playing their unique and important roles. We feel confused about how individuals of the same species can also differ

in size or appearance, due to the external environment or internal attributes. To answer some of these and other questions, we invite you to explore the truth that has been hidden in different scales of the world... Please use your works to tell us your findings and conclusions.

Please find an appropriate and clear natural science-related topic with your friends and conduct your in-depth research over the topic. Through that process, focus on learning about how to find reliable information and data, have a balanced and comprehensive study, and present and showcase your analysis and understanding at the end. These are some of GNHD's objectives and are also our requirements when evaluating projects.



Finally, we want to hear your thoughts and findings in presenting your topic, not just a summary of the information found through various primary sources. Don't limit yourself to what you can read online through secondary sources. Go out and explore your environment, facilitate interviews, meet professionals and experts, conduct experiments, and more! This is your project- design it in a way that represents and showcases your research and findings.

All right, let's kick off the discovery journey. Observe nature and find out the truth of the natural world embedded in all of its amazing scales, from the micro to the macro!

