

PRACTICE 6

Directions: For each of the two passages, take ten minutes to read the passage and plan and write a one- or two-paragraph response to the questions in the boxes. Use multiple pieces of evidence from the text to support your response. Compose your answer on a computer if one is available or write your answer on a sheet of paper.

Short-Answer Practice: Explanation

How did the moon form? Scientists have suggested a number of answers to that question over time. Some have suggested that the moon was originally part of Earth and somehow broke off early in the history of the solar system. Others have suggested that the moon was formed separately from Earth and then at some point was drawn into Earth's gravitational field, where it remains.

Another possible answer involves rings. Earth (and other planets with a moon or moons) may have originally had rings like those of the planet Saturn. A team of scientists has recently suggested that all moons in our solar system were formed from rings. According to their idea, a moon begins to coagulate, or come together, out of debris near the outer edges of planetary rings. At those outer edges, the newly formed moon has a better chance of holding together without being broken up again by the planet's gravity. (Small objects orbiting close to a planet tend to be pulled toward the planet by gravity; they often ultimately crash into the planet.) The initial products of this process of coagulation are small "moonlets," which spin outward from the planet, colliding and fusing with other moonlets as they do so. The process is somewhat similar to that of a snowball rolling downhill, gathering more material as it rolls. This hypothesis has at least one source of appeal, in that it explains why the larger moons of planets like Neptune and Uranus (which have more than one moon) are farther away from the planet than the smaller moons.

Formation of the Moon Writing Prompt

Earth does not currently have rings. If Earth originally had rings, what happened to them? Using information from the passage, suggest a hypothesis to answer that question. Cite specific information from the passage as support for why your suggestion is plausible.

Short-Answer Practice: Experiment

Human blood is composed of approximately 45 percent *formed elements* (which include red blood cells, white blood cells, and platelets) and approximately 55 percent *plasma*, a liquid that holds the formed elements in suspension. The ratio of formed elements to plasma can vary according to an individual's diet, health, and genetic makeup. The ratio can be measured by taking a sample of blood and spinning it for 20 minutes in a centrifuge (a device used to separate substances) to force the formed elements to separate from the plasma. The plasma can then be siphoned off, measured, and compared to the quantity of formed elements.

Researchers are interested in learning the ways in which diet can affect the ratio of formed elements to plasma. They suspect that consumption of caffeine may have short-term effects on plasma levels relative to levels of formed elements in the blood.

Caffeine and Blood Components Writing Prompt

Design a controlled experiment that the researchers can use to test their hypothesis. Include descriptions of data collection and explain how the researchers would know whether their hypothesis is well supported by the experimental data.