



FOCUS: Answering inference questions based on passages.

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DIRECTIONS: Read the passage and the inference questions that follow. Mark the choice that best answers each question.

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The Metric System



Reading > Lesson 3: Inference Questions > Exercise 3.2

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- 1 What can be inferred regarding the change to a new measurement system?
- ☐ The social turmoil in France had prevented it from occurring earlier.
 - ☐ It was inspired in part by the spirit of change brought about by the French Revolution.
 - ☐ Scientists and merchants demanded that the French government revise the metric system.
 - ☐ The new system was not expected to completely replace existing systems.



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- 2 Those pushing the hardest to change the measurement system were probably
- ☐ scientists and merchants
 - ☐ opposed to the revolution
 - ☐ employed by the government
 - ☐ influenced by similar changes in the rest of Europe



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3 The passage implies that prior to the changes proposed in 1790

- ☐ the standard lengths of measure were not based on a single "natural" scale.
- ☐ the length of the equator had not been determined accurately
- ☐ the decimal system of measurement was used only in Holland
- ☐ the use of meridian arcs as a reference had not been considered



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- 4 It is implied that those assigned to survey the meridian arc

- ☐ made the measurements without much difficulty
- ☐ finished their task ahead of schedule
- ☐ were determined to complete the task despite great risk
- ☐ also determined the weight of water



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5 It can be concluded that the plan introduced by de Talleyrand

- ☐ was not discussed in the French National Assembly until April 1795
- ☐ precisely defined measurement standards for the meter and gram
- ☐ required new surveying techniques to be developed
- ☐ was the first time the freezing and boiling points of water were set forth in degrees centigrade



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- 6 The author suggests that the international committee report
- ☐ recommended that all of Europe adopt common units of measurement
 - ☐ was ratified immediately after it was submitted
 - ☐ became the basis for the use of the meter and kilogram in France
 - ☐ is the first document to be ratified after the French Revolution



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- 7 What can be inferred about the definition of the kilogram?
- ☐ It is less precise than the definition of the centimeter.
 - ☐ It has been revised since its original definition.
 - ☐ It took longer to work out than the definition of the centimeter.
 - ☐ It was opposed by many merchants and scientists when it was first introduced.



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Beginning in 1798, an international committee with representatives from nine nations began to carry out the calculations required to produce the standards needed to define and extend the new system of weights and measures. It submitted its report to the French legislature for ratification on June 27, 1799, and the bill passed on December 10, 1799. That document is the first official text in which the metric system is mentioned. According to the law, the definitive standards of length and mass to be used in commercial and scientific interactions throughout France were the meter and the kilogram.

Since then, the definitions of the standards of length and mass have undergone several revisions, and other units of measurement have been incorporated. Nevertheless, the basic tenets of the metric system--simplicity and

measurement have been incorporated. Nevertheless, the basic tenets of the metric system--simplicity and convenience stemming from its use as a decimal system of measure, and uniformity and reproducibility deriving from its reliance on a set of standards--survive. Since its adoption in Europe, first in France, then in Holland, followed by Greece, the use of the metric system has proliferated so that no nation is without knowledge of it. The metric system has become, in the motto adopted by its founders, a system "for all people, for all time." The United States is one of only a few countries that have not officially adopted the metric system for manufacturing and commercial activities, despite its arguable merits.



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- 8 What does the author imply about the metric system?
- ☐ Its spread to many nations around the world has been a positive development.
 - ☐ Despite its many advantages, it also has important drawbacks.
 - ☐ It will eventually be adopted by the United States for use in manufacturing and commercial activities.
 - ☐ It has played as important a role in politics as it has in science and technology.



The French Revolution, which began with the storming of the Bastille on July 14, 1789, gave birth not only to a new republic but also to a new system of weights and measures.

republic but also to a new system of weights and measures. Eighteenth-century France's system of weights and measures had fallen into a chaotic state, with unit names that were confusing or superfluous and standards that differed from one region to another. Seizing upon the opportunity presented to them by the political and social turmoil accompanying the revolution, in 1790 scientists and merchants, under the leadership of Charles-Maurice de Talleyrand, presented a plan to unify the system to the French National Assembly.

The plan proposed two changes: the establishment of a decimal system of measurement and the adoption of a "natural" scale of length. Neither of these notions was new to scholars of this period. The first had been discussed as early as 1585 by Simon Stevin, a hydraulic engineer in Holland, in a pamphlet called *La Disme* ("The Tenth Part"). The second notion was introduced in 1670 by Abbe Gabriel Mouton, who proposed that a standard of length be defined in terms of a fraction of the length of the [meridian arc](#) extending from the north pole to the equator.

The plan was finally adopted into law on April 7, 1795. The

The plan was finally adopted into law on April 7, 1795. The new legislation defined the meter as the measure of length equal to one ten-millionth of the meridian arc passing through Paris from the North Pole to the equator and the gram as the mass of pure water contained in a cube one-hundredth of a meter (a centimeter) at the temperature of melting ice. It also made this system obligatory in France.

The tasks of actually determining the sizes of these newly defined units were assigned to Jean-Baptiste Delambre and Pierre Mechain, who were to survey the length of the meridian arc through Paris, and to Louis Lefevre-Gineau and Giovanni Fabbioni, who were to determine the absolute weight of water. As it turned out, these measurements were made with difficulty and, at times, danger. For example, during the period between 1792 and 1798, Delambre and Mechain made measurements along the meridian between Dunkirk, France, and Barcelona, Spain, amid the riot and turmoil that were then present in many parts of Europe. They were frequently arrested as spies, often had their equipment confiscated, and were generally harassed at every turn. Finally in 1798, with the job done and the length of the centimeter accurately known, Lefevre-Gineau and

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