Подготовьте чтение и перевод текста устно. Выполните задания после текста письменно.

Text: "Units of Measurement".

Real science has various recognised steps. It always begins with observation followed by classification and measurement. Classification has become the first step towards understanding of a new phenomenon. Phenomena have to be put in some order before anything can be done with them. Measurement is one further step in the process of putting them in order. It is only by measurement that new knowledge enters science.

Much of physics deals with measurements of physical quantities such as length, time, velocity, area, volume, mass, density, temperature and energy. Many of these quantities are interrelated. For example, density is mass divided by volume. Most of the physical quantities are related to length, time and mass. Therefore all the systems of physical units are derived from these three fundamental units.

Practically there are three main systems of measurement in use today: the British system of units, the metric system of units and the (International) System of Units (SI). With a few exceptions nearly all the nations of the world use the metric system. The value of the MKS (metre-kilogram-second) system is that its various units possess simple and logical relationships among themselves, while the British system (the f. p. s. — foot-pound-second) is a very complicated one. For example, in the British system 1 mile is equal to 1,760 yards; 1 yard is equal to 3 feet, and 1 foot is equal to 12 inches. In the English system converting one unit into another is a hard and monotonous job, while in the MKS system conversions of one unit to another can be carried out by shifts of a decimal point (comma in Russian writing).

The standard metre of the world was originally defined in terms of the distance from the north pole to the equator. This distance is close to 10,000 kilometres or 10^7 metres.

In fact, the SI Units is an internationally agreed coherent system of units derived from the MKS system. The seven basic units in it are: the metre (m), kilogram (kg), second (s), ampere (a), Kelvin (K), mole (mol), and candle (свеча) (cd).

Note. 10^7 metres – ten to the seventh power metres

1. Define the parts of speech of the following words and translate them.

a) real – reality, scientific – science, various – variety, observable – observation, measurable – measurement, possible – possibility, physical – physics, quantitative – quantity, derivable – derivation, valuable – value, coherent – coherence;

b) precise – precisely, fundamental – fundamentally, practical – practically, main – mainly, near – nearly, simple – simply, logical – logically, equal – equally, monotonous – monotonously, original – originally, international – internationally, basic – basically.

2. Find English equivalents in the text.

1. признанные этапы
   _____
2. в процессе упорядочения
   _____
3. истинная наука
   _____
4. эти свойства взаимосвязаны
   _____

5. масса, делённая на объём

   _____

6. выводится из

   _____

7. на основании расстояния

   _____

8. плотность

   _____

9. система измерения

   _____

10. за небольшим исключением

    _____

11. ценность метрической системы

    _____

12. десять в седьмой степени

    _____

3. Fill in the missing words.

1. Real science always begins with observation _____ by classification and _____.
2. Much of physics deals with measurement of physical _____ such as length, time, velocity, area, volume, mass, density, temperature and energy.
3. Many of these quantities are _____.
4. _____ is mass divided by volume.
5. _____, _____, _____ are three fundamental units.
6. With a few exceptions nearly all the nations of the world use _____ _____.
7. Various units of the MKS system _____ simple and logical _____ among themselves.

4. Define whether the sentences are true or false.

1. Real science begins with measurement followed by observation.
2. Velocity is mass divided by volume.
3. Most of physical quantities are related to length, time and mass.
4. Foot is a unit of area in the British system of measurement.
5. The standard metre of the world was defined in terms of the distance from the north pole to the south pole.

XIII. Translate.

1. Истинная наука всегда начинается с наблюдения, затем следует классификация и измерение.
2. Большая часть физики связана измерениями таких физических величин как длина, время, скорость, площадь, объём, масса, плотность, температура и энергия.
3. Практически существует три главные системы измерений, которыми мы пользуемся сегодня.
4. Стандартный метр мира был первоначально определён на основании расстояния от северного полюса до экватора.
5. Ценность метрической системы измерений состоит в том, что её различные единицы находятся в простых и логических отношениях друг с другом.