UNIT 14

Task 4. Match the words in the left column to their definitions in the right column:write the correct letter of the answer.

1 a 3D construction	**a** complicated equal sums
2 a graphical image	**b** to find or produce an answer, a sum of money, etc.
3 a heat source	**c** to make up the process of mathematical modeling, performed on a computer
4 a model	**d** the computer-controlled sequential layering of materials to create three-dimensional shapes
5 a simulation	**e** to think about somebody/something until you understand them/it
6 complex physics equations	**f** to comprise statements that the values of two mathematical expressions are equal (indicated by the sign =).
7 the laws of physics	**g** to join
8 to come up with	**h** a three-dimensional representation of a person or thing or of a proposed structure, typically on a smaller scale than the original
9 to create simulations	**i** to conduct the process of mathematical modeling, performed on a computer, which is designed to predict the behaviour of or the outcome of a real-world or physical system
10 to do real life experiments	**j** a visual representation of an object
11 to figure smth out	**k** to lead modeling to a higher stage
12 to follow rules	**l** to forecast
13 to include the math equations	**m** stated facts which have been deduced and derived based on empirical observations
14 to make predictions	**n** to examine a new medicine
15 to put smth together	**o** anything that can heat up a spacecraft
16 to run simulations on computers	**p** to accept advice, instructions, etc. and do what you have been told or shown to do
17 to take simulations to a new level	**q** to carry out true-to-life test
18 to test a new drug	**r** the production of a computer model of something, especially for the purpose of study

Task 6. Read the text below and decide which answer (A, B, C or D) best fits each gap.

Computer **(1)** _____modeling is a discipline gaining popularity in both government and industry. Computer simulation modeling can assist in the design, creation, and evaluation of complex systems. Designers, program managers, analysts, and engineers use computer simulation **(2)** _____to understand and evaluate "what if" case scenario. It can **(3)** _____a real or proposed system using computer software and is useful when changes to the actual system are difficult to implement, involve high costs, or are impractical. Some examples of computer simulation modeling familiar to most of us include: weather forecasting, flight **(4)** _____used for training pilots, and car **(5)** _____modeling. For example, you could input the laws of gravitation into a computer, and use it to create a **(6)** _____of the planets of the solar system orbiting the Sun. Then you could fire asteroids through the solar **(7)** _____and see what happens. These are the kinds of simulations that save us a lot of work. Simulations are also used in meteorology to study weather and climate change, but this is an area where **(8)** _____is difficult. Predicting the motions of every particle in the Earth's atmosphere is incredibly hard, and that is why weather forecasts can be so wrong sometimes (200 word).

1	**A**model	**B**simulation	**C**design	**D**project
2	**A**simulating	**B**modeling	**C**designing	**D**projecting
3	**A**model	**B**example	**C**design	**D**project
4	**A**simulators	**B**modulators	**C**designers	**D** projectors
5	**A**bumping	**B**striking	**C**colliding	**D**crash
6	**A**2D simulation	**B** 2D modulation	**C**3D modulation	**D**3D simulation
7	**A** planet	**B** star	**C**system	**D**research
8	**A**imagination	**B**designing	**C**modeling	**D**projecting

Task 6. Fill in the gaps with the correct preposition:

1 _____ the smallest things _____ our universe, _____ the quarks;
2come down _____ the ways;
3represent one thing _____ another;
4show relationships _____ factors;
5take a break every hour _____ a total _____ three hours;
6 be _____ simple _____ a diagram _____ paper
7do experiments _____ something
8useful _____ scientists and nonscientists alike

Task 8. Read the text below and decide which answer (A, B, C or D) best fits each gap.

Advantages of Physical Models

There are several advantages **(1)** _____ physical models. They allow you to try things **(2)** _____ for real that would be impossible outside of a model. For example, you could create a model of a house, and then destroy it in different ways

to see how a fire or flood affected the building materials. Or you could simulate an earthquake on a model of a city, which **(3)** _____ be impossible and dangerous to do with a real city.

Sometimes physical models are **(4)** _____ accurate than computers, especially in the case of chaotic things like fluid flow. If you're studying how water will flow **(5)** _____ the sides of a boat, or through a complex network of pipes, you really can't beat a physical model.

Another advantage is that they are safer for certain kinds of experiments. One of the more common examples of physical models are crash test dummies. Before a car makes it onto a road they're tested **(6)** _____ simulating all kinds of crashes, and seeing the effect it has on human-sized dummies in the car. This certainly isn't something you could do safely with actual people.

Last of all, models are great for visualization and education. Nobody can really see the atom, because it's too small. And an image of the whole solar system with all the planets in view is not practical, because the planets **(7)** _____ tiny compared to the distances between them. The models can be **(8)** _____ to educate people and help them visualize things that are hard to picture.

1	**A**to	**B**for	**C**in	**D**after
2	**A**on	**B**out	**C**in	**D**after
3	**A**would been	**B**will been	**C**would	**D**will
4	**A**the most	**B**much	**C**the more	**D**more
5	**A**over	**B**it	**C**around	**D**about
6	**A**while	**B**by	**C**as	**D**in
7	**A**are	**B** were	**C**is	**D**will
8	**A**use	**B**uses	**C**using	**D**used