**The 21st – 22d of May (4 ч.)**

**Тема: “Achievements and innovations in science and technology”**

**(Достижения и инновации в области науки и техники)**

**Automation in the human's life**

**Vocabulary**

manufacture - производство

previously - ранее

sequence - последовательность

non-manufacturing - непроизводственный

independently - независимо

development - развитие

simplification - упрощение

to resemble - походить

efficiency - эффективность

environment - окружение

dangerous - опасный

workpieces - заготовки

feedback principle — принцип обратной связи

ability - способность

flyball governor — центробежный регулятор

steam engine - паровоз

commonly — обычно, обыкновенно

apply – употреблять, применять

to facilitate - способствовать

influence - влияние

rapidly - быстро

edit - редактировать

consumer product industries - отрасли экономики по производству потребительских товаров

nevertheless — несмотря на, однако

particular - особый

production needs — производственные нужды

**Задание № 1. Изучите лексику по теме, отгадайте анаграммы:**

1. s, a, n, e, o, d, u, g, r
2. t, o, e, d, p, e, v, m, n, l, e
3. l, o, p, t, I, r, a, c, u, r
4. f, u, m, a, c, t, u, r, a, n, e
5. n, t, e, v, i, o, m, n, e, r, n

**Задание № 2.** Прочитайте текст. Соотнесите слова из двух столбцов так, чтобы получились словосочетания из текста.

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| --- | --- |
| 1. automobile 2. human 3. flyball 4. feedback 5. steam 6. production 7. industrial 8. automatic9. word 10. modern  | a) processorsb) needsc) engined) industrye) officef) controlg) governorh) principlei) robotsj) devices |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
|  |  |  |  |  |  |  |  |  |  |

**Automation in the human's life**

Automation is the system of manufacture performing certain tasks,previously done by people, by machines only. Thesequences of operations are controlled automatically.

The term automation is also used to describenon-manufacturing systems in which automaticdevices can operate independently of human control.

Automated manufacturing had several steps in its development. Mechanization was the first step necessary in the development of automation. The simplification of work made it possible to design and build machines that resembled the motions of the worker. These specialized machines were motorized and they had better production efficiency.

Industrial robots, originally designed only to perform simple tasks in environments dangerous to human workers, are now widely used to transfer, manipulate, and position both light and heavy workpieces performing all the functions of a transfer machine.

In the 1920s the automobile industry for the first time used an integrated system of production. This method of production was adopted by most car manufacturers and became known as Detroit automation.

The feedback principle is used in all automatic-control mechanisms when machines have ability to correct themselves. The feedback principle has been used for centuries. An outstanding early example is theflyball governor**,** invented in 1788 by James Watt to control the speed of thesteam engine.

Using feedback devices, machines can start, stop, speed up, slow down, count, inspect, test, compare, and measure. These operations are commonly applied to a wide variety of production operations.

Computers have greatlyfacilitated the use of feedback in manufacturing processes.

Another development using automation are the flexible manufacturing systems (FMS). A computer in FMS can be used to monitor and control the operation of the whole factory.

Automation has also had an influence on the areas of the economy other than manufacturing. Small computers are used in systems called word processors, which are rapidly becoming a standard part of the modern office. They are used to edit texts, to type letters and so on.

The automation technology in manufacturing and assembly is widely used in car and other consumer product industries.

Nevertheless, each industry has its own concept of automation that answers its particular production needs.

**Задание № 3**

**Найдите в тексте английские эквиваленты:** система производства,

контроль человека, промышленный робот, упрощение работы, автомобильная промышленность, гибкая производственная система, принцип обратной связи, центробежный регулятор, отрасли экономики по производству, используются в системах называемых текстовыми процессорами