**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 1.**

**Тема занятия**

**Изобретение радио.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.

**Задачи занятия.**

Образовательные:

1. активизировать употребление лексики по теме «изобретение радио»;
2. практиковать учащихся в устной речи;
3. совершенствовать навыки работы с компьютером в среде POWER POINT с использованием английского языка;
4. совершенствовать слухо-произносительные навыки, в том числе применительно к новому языковому материалу;
5. развивать навыки чтения и перевода;
6. совершенствовать грамматические навыки (употребление предлогов);

Развивающие:

1. развитие памяти учащихся;
2. развитие умения отвечать на вопросы;
3. развитие эрудиции учащихся;
4. развитие умения переводить с русского языка на английский;
5. развитие информационной (готовность к работе с информационными источниками) и образовательной (готовность к самообразованию, в т.ч. способность к получению знаний из различных источников) компетентности учащихся;
6. развитие навыков самостоятельной работы с текстом.

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной (готовность к взаимодействию, освоению новых способов деятельности) и коммуникативной (готовность и способность осуществлять устную коммуникации) компетентности.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1.Ответьте на вопросы. Викторина на тему «Изобретение радио».**

What interesting facts about radio do you know?

1. From what country was a person who invented wireless telegraphy. What was his name?

Guglielmo Marconi is often called as the pioneer of long distance radio transmission. He was from Italy.  The wireless telegraphy is the beginning of the radio development.  Therefore, the people can access the radio without using wire.

2. What did the word “Broadcasting “mean in the past?

Broadcasting is common term today.  It is used to call the radio transmission. However, in the past, broadcasting was a term used to describe the wide scattering of seed in the agricultural world.

3. Who and when predicted the transmission of radio waves?

James Clark Maxwell was the famous person who had predicted the feasibility осуществимость of radio transmission and existence of radio waves in 1860s.

4. When did the first transatlantic transmission of radiowaves occur?

As I have stated before, Marconi was the famous person in the development of long distance radio transmission.  In 1901 and 1902, this man made a successful breakthrough by having the first transatlantic transmission of radio waves.

5. What was the first radio message?

I believe that President Roosevelt must be surprised with the advance technology of radio created by Marconi.  The president sent a radio message to Edward VII in 1903 with the help of Marconi.

6. Who before Marconi proved the existence of radio waves?

There were many other scientists prior to Marconi who claimed to invent radio transmission. Those include Heinrich Hertz, Oliver Lodge and Nikola Tesla.

7. How much did the radio license cost?

It is very strange to know that people had to own a license when they wanted to listen to a radio. It really happened in United Kingdom since 1922 till 1971. The government wanted the citizens to pay 10 shilling to get a radio license.

8. Did Marconi have any awards?

Due to his wonderful contribution to the wireless telegraphy, Marconi was awarded with a Nobel Prize in 1909.

9. Who was Marconi’s great grandfather father?

John Jameson who was famous as the founder of Jameson Irish Whiskey was his great grandfather.

10. What was the first topic discussed by the first commercial radio broadcast?

If you listen to the radio, there are many topics discussed here. But can you guess the first topic discussed by the first commercial radio broadcast? It was the result of election in 1920. The winners of that election were Harding and Cox.

11. How does radio affect our body?

Radio affects our body by presenting the electromagnetic radiation.

12. Who was the inventor of FM of a radio?

Maybe you never heard about Edwin Howard Armstrong. This man was the inventor of FM band of a radio.

13. 7 Radio stations for studying English.

1. [Tunein.com](http://tunein.com/radio/Learning-English-p51794/) //Начало формы
2. [RadioAustralia.net.au](http://www.radioaustralia.net.au/international/radio/programschedule?timezone=Europe/Helsinki&stream=ras-1)
3. [BBC.co.uk](http://www.bbc.co.uk/radio)
4. [CBC.ca](http://www.cbc.ca/radio/)
5. [NYTTalk.Radio.net](http://nyttalk.radio.net/)
6. [RT.com](https://www.rt.com/)
7. [VoaNews.com](http://www.voanews.com/)

**Задание 2. Прочитайте и переведите текст.**

**The invention of radio in English.**

Radio is the first wireless mode of communication. Radios send messages by radio waves instead of wires. German scientist Heinrich Hertz proved the existence of radio waves, which occur in nature.

In 1895, a young Italian named Gugliemo Marconi invented what he called “the wireless telegraph” while experimenting in his parents ' attic. He used radio waves to transmit Morse code and the instrument he used became known as the radio. In 1906, Marconi shared the Nobel Prize for physics with Ferdinand Braun, a German, in recognition of their contributions to the development of wireless telegraphy. Radio works by changing sounds or signals into radio waves, which travel through air, space, and solid objects, and the radio receiver changes them back into the sounds, words, and music we hear.

A radio broadcast is a one-way transmission односторонняя передача, originating from a radio station. In the early 1920s, radio played an important role in people's lives, and over 500 stations were broadcasting news, music, sports, drama, and variety shows. By the 1930s, most households in the U. S. and Europe had at least one radio. In the evening, the family gathered around a big " console” приставка that was usually located in the living room, where they might spend hours listening to variety shows or comedies from favorites like Jack Benny or Edgar Bergen and Charlie McCarthy.

Everyone used their imagination to visualize all of the characters in their favorite shows. This was the beginning of the " Golden Age of Radio.”

**Задание 3. Дайте английские эквиваленты следующих слов и словосочетаний.**

Первый беспроводной способ общения

*the first wireless mode of communication*

Радиоволны вместо проводов

*radio waves instead of wires*

Доказал существование радиоволн

*proved the existence of radio waves*

Происходить в природе

*occur in nature*

В знак признания их вклада в развитие беспроводной телеграфии

*in recognition of their contributions to the development of wireless telegraphy*

Которые путешествуют через воздух, пространство и твердые объекты

*which travel through air, space, and solid objects*

Радиопередача-это односторонняя передача, идущая от радиостанции

*A radio broadcast is a one-way transmission originating from a radio station.*

Передавали музыку

*were broadcasting news*

Собирались вокруг приставки

*gathered around a big " console”*

Проводили часы, слушая

*spend hours listening to*

Золотой век радио

*the " Golden Age of Radio.”*

**Задание 4. Дайте русские эквиваленты следующих слов и словосочетаний. Составьте предложения с данными словосочетаниями.**

invented what he called “the wireless telegraph”

the instrument he used became known as the radio

Radio works by changing sounds or signals into radio waves

most households in the U. S. and Europe

that was usually located

used their imagination

the beginning of the " Golden Age of Radio.”

**Задание 5. Вставьте следующие предлоги, где необходимо.**

by -3 in-3 as-1 with-1 to-1 from-1 at-1 Of- 5 instead-1 for-1 into-1 around-1

mode 1\_\_\_communication.

send messages 2\_\_\_radio waves 3\_\_\_ 4\_\_\_ wires

occur 5\_\_\_nature

became known 6\_\_\_the radio

shared the Nobel Prize 7\_\_\_physics 8\_\_\_Ferdinand Braun 9\_\_\_recognition 10\_\_\_their contributions 11\_\_\_the development 12\_\_\_ wireless telegraphy

Radio works 13\_\_\_changing sounds or signals 14\_\_\_radio waves

originating 15\_\_\_a radio station.

16\_\_\_the 1930s, most households in the U. S. and Europe had 17\_\_\_least one radio.

18\_\_\_the evening, the family gathered 19\_\_\_a big " console”

Golden Age 20 \_\_\_Radio

**Ответы.**

mode of communication.

send messages by radio waves instead of wires

occur in nature.

became known as the radio.

shared the Nobel Prize for physics with Ferdinand Braun, in recognition of their contributions to the development of wireless telegraphy.

Radio works by changing sounds or signals into radio waves,

originating from a radio station.

By the 1930s, most households in the U. S. and Europe had at least one radio.

In the evening, the family gathered around a big " console”

Golden Age of Radio

1of 2by 3instead 4of 5in 6as 7for 8with 9in 10of 11to 12of 13by 14into 15from 16by 17at 18in 19around 20 of

**Задание 6. Переведите на английский язык.**

* Радио — первый беспроводной режим связи.
* Немецкий ученый Генрих Герц доказал существование радиоволн
* В 1895 году итальянец по имени Гуглиемо Маркони изобрел беспроводной телеграф.
* Используемый им инструмент стал известен как радио.
* Радио работает путем изменения звуков или сигналов в радиоволнах, которые перемещаются по воздуху, пространству и твердым объектам.
* Радиоприемник меняет их на звуки, слова и музыку, которые мы слышим.
* В начале 1920-х годов более 500 станций транслировали новости, музыку, спортивные состязания, драмы и эстрадные шоу.
* 1930 годы стали началом «Золотого Века Радио».

**Задание 7. Переведите на английский язык конспект текста.**

Радио — первый беспроводной режим связи. Радиостанции отправляют сообщения по радиоволнам вместо проводов. Немецкий ученый Генрих Герц доказал существование радиоволн, которые происходят в природе.

В 1895 году молодой итальянец по имени Гуглиемо Маркони изобрел то, что он назвал «беспроводным телеграфом», экспериментируя на чердаке его родителей. Он использовал радиоволны для передачи кода Морзе, и используемый им инструмент стал известен как радио. В 1906 году Маркони поделился Нобелевской премией по физике с Фердинандом Брауном, немцем, в знак признания их вклада в развитие беспроводной телеграфии. Радио работает путем изменения звуков или сигналов в радиоволнах, которые перемещаются по воздуху, пространству и твердым объектам, а радиоприемник меняет их на звуки, слова и музыку, которые мы слышим.

Радиовещание является односторонней передачей, исходящей от радиостанции. В начале 1920-х годов радио сыграло важную роль в жизни людей, и более 500 станций транслировали новости, музыку, спортивные состязания, драмы и эстрадные шоу. К 1930-м годам большинство домов в США и Европе имели по крайней мере одно радио. Вечером семья собиралась вокруг большого радио, которое обычно находилось в гостиной, где они могли часами слушать разнообразные шоу или комедии таких фаворитов, как Джек Бенни или Эдгар Берген и Чарли Маккарти.

Они визуализировали персонажей из своих любимых шоу. Это стало началом «Золотого Века Радио».

**Задание 8. Составьте краткий пересказ текста «Изобретение радио».**

**Картинки для викторины.**



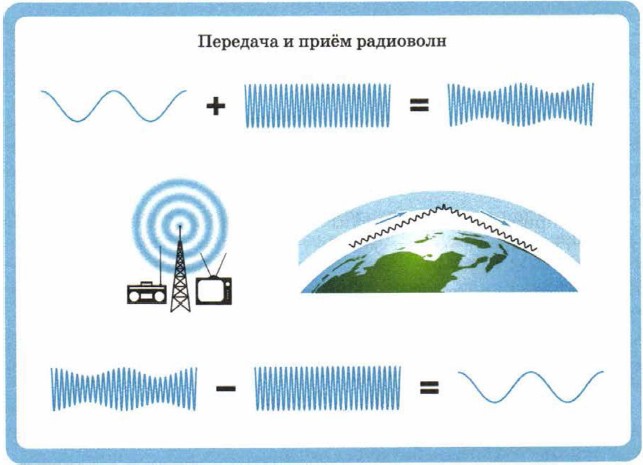
**Guglielmo Marconi**



**Scattering of seed in the agricultural world.**



**James Clark Maxwell**

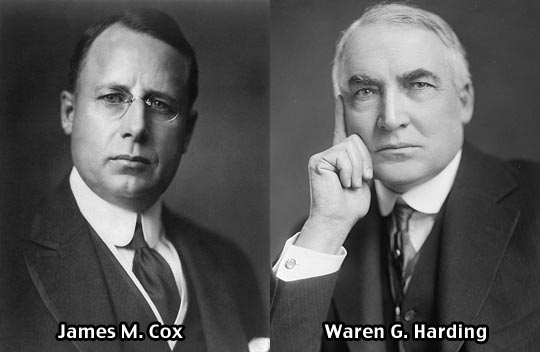




**Franklin Delano Roosevelt was born on the 12 of April . He was the 32th President of the USA. He was the only American president elected for more than two terms.**

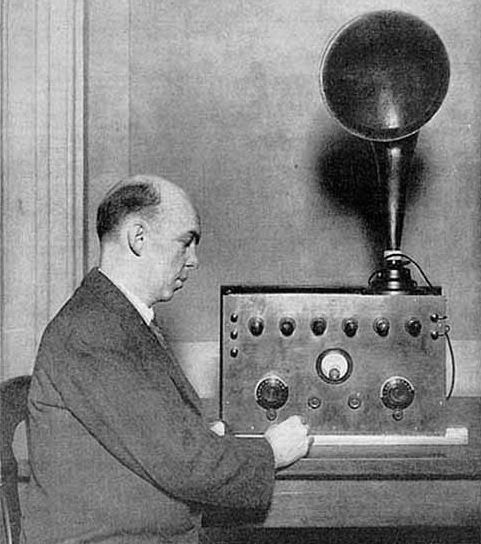


**A German physics. Graduated from the University in Berlin. From 1885 till 1889 he was a professor of physics in the University of Karlsruhe. Since 1889 he was a professor of physics in the University of Bonn. Was born on the22nd of February in Hamburg.He died on the 1st of January in Bonn at the age of 36.**





**Influence of radio waves on the human body**



**An American radio engineer and inventor. He was born in New York and graduated from Columbian University in which he later worked as a professor. He entered history as an inventor of the most important types of radio receivers- regenerative, super regenerative and super heterodyne. He died on the1st of February1954 at the age of 63 in New York, USA.**

**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 2.**

**Тема занятия**

**Открытие электромагнитных волн.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.

**Задачи занятия.**

Образовательные:

1. активизировать употребление лексики по теме «открытие электромагнитных волн»;
2. практиковать учащихся в переводе с русского языка на английский язык;
3. совершенствовать слухо-произносительные навыки, в том числе применительно к новому языковому материалу;
4. развивать навыки нахождения в тексте нужной информации;
5. совершенствовать грамматические навыки (суффиксы, части речи);
6. развивать навыки составления предложений.

Развивающие:

1. развитие умения находить в тексте нужную информацию;
2. развитие эрудиции учащихся;
3. развитие умения переводить с русского языка на английский;
4. развитие навыков самостоятельной работы с текстом;
5. развитие произносительных навыков;

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной компетентности (готовность к взаимодействию; освоению новых способов деятельности) и коммуникативной компетентности (готовность и способность осуществлять устную коммуникации);
3. расширение кругозора обучающихся.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1. Фонетическая зарядка. Проговаривание слов и выражений по теме «Радиотехника и радиоэлектроника».**

to invent//long distance// radio transmission // wireless access //wire// broadcasting// //to predict//existence//breakthrough //radio message // to affect //inventor //mode //instead of// to occur //attic// to transmit// recognition// solid object//radio receiver// console

**Задание 2.Прочитайте текст на тему «Изобретение электромагнитных волн».**

Heinrich Rudolf Hertz ([/hɜːrts/](https://en.wikipedia.org/wiki/Help:IPA/English); German:  22 February 1857 – 1 January 1894) was a [German](https://en.wikipedia.org/wiki/German_people) [physicist](https://en.wikipedia.org/wiki/Physicist) who first proved the existence of the [electromagnetic waves](https://en.wikipedia.org/wiki/Electromagnetic_waves) predicted by [James Clerk Maxwell](https://en.wikipedia.org/wiki/James_Clerk_Maxwell)'s [equations of electromagnetism](https://en.wikipedia.org/wiki/Maxwell%27s_equations). The unit of frequency was named the "[Hertz](https://en.wikipedia.org/wiki/Hertz)" in his honor.

Heinrich Rudolf Hertz was born in 1857 in [Hamburg](https://en.wikipedia.org/wiki/Hamburg) into a prosperous and cultured  family.

While studying at school in Hamburg, Hertz showed an interest for science as well as languages, learning [Arabic](https://en.wikipedia.org/wiki/Arabic_language) and [Sanskrit](https://en.wikipedia.org/wiki/Sanskrit). He studied sciences and engineering in the German cities of [Dresden](https://en.wikipedia.org/wiki/Dresden), [Munich](https://en.wikipedia.org/wiki/Technical_University_of_Munich) and [Berlin](https://en.wikipedia.org/wiki/Humboldt_University_of_Berlin), In 1880, Hertz got his PhD from the [University of Berlin](https://en.wikipedia.org/wiki/University_of_Berlin).

He had two daughters: Johanna, born on 20 October 1887 and [Mathilde](https://en.wikipedia.org/wiki/Mathilde_Carmen_Hertz), born on 14 January 1891, who went on to become a notable biologist. During this time Hertz conducted his landmark research into electromagnetic waves.Hertz took a position of Professor of Physics and Director of the Physics Institute in [Bonn](https://en.wikipedia.org/wiki/Bonn) on 3 April 1889, a position he held until his death. He died at the age of 36 in [Bonn](https://en.wikipedia.org/wiki/Bonn), Germany in 1894. Hertz's daughters never married and he has no descendants.

**Electromagnetic waves.**

In 1864 Scottish mathematical physicist [James Clerk Maxwell](https://en.wikipedia.org/wiki/Institute_of_Physics_James_Clerk_Maxwell_Medal_and_Prize) proposed a comprehensive theory of electromagnetism, now called [Maxwell's equations](https://en.wikipedia.org/wiki/Maxwell%27s_equations). Maxwell's theory predicted that coupled [electric](https://en.wikipedia.org/wiki/Electric_field) and [magnetic fields](https://en.wikipedia.org/wiki/Magnetic_field) could travel through space as an "[electromagnetic wave](https://en.wikipedia.org/wiki/Electromagnetic_wave)". Maxwell proposed that [light](https://en.wikipedia.org/wiki/Light) consisted of electromagnetic waves of short wavelength, but no one had been able to prove this, or generate or detect electromagnetic waves of other wavelengths.

 Hertz did produce an analysis of Maxwell's equations, showing they did have more validity than the then prevalent "[action at a distance](https://en.wikipedia.org/wiki/Action_at_a_distance)" theories.

After Hertz received his professorship at Karlsruhe he was experimenting with a pair of [Riess spirals](https://en.wikipedia.org/wiki/Riess_spiral" \o "Riess spiral) in the autumn of 1886 when he noticed that discharging a [Leyden jar](https://en.wikipedia.org/wiki/Leyden_jar) into one of these coils would produce a spark in the other coil. With an idea on how to build an apparatus, Hertz now had a way to proceed with the "Berlin Prize" problem of 1879 on proving Maxwell's theory (although the actual prize had expired uncollected in 1882). He used a Ruhmkorff  [coil](https://en.wikipedia.org/wiki/Induction_coil)-driven spark gap and one-meter wire pair as a radiator. Capacity spheres were present at the ends for circuit resonance adjustments. His receiver was a simple half-wave [dipole resonance](https://en.wikipedia.org/wiki/Dipole_antenna)  with a [micrometer spark gap](https://en.wikipedia.org/wiki/Spark_micrometer) between the elements. This experiment produced and received what are now called [radio waves](https://en.wikipedia.org/wiki/Radio_wave) in the [very high frequency](https://en.wikipedia.org/wiki/Very_high_frequency) range.

Within 10 years researchers such as [Oliver Lodge](https://en.wikipedia.org/wiki/Oliver_Lodge), [Ferdinand Braun](https://en.wikipedia.org/wiki/Ferdinand_Braun), and [Guglielmo Marconi](https://en.wikipedia.org/wiki/Guglielmo_Marconi" \o "Guglielmo Marconi) employed radio waves in the first [wireless telegraphy](https://en.wikipedia.org/wiki/Wireless_telegraphy) [radio communication](https://en.wikipedia.org/wiki/Radio_communication) systems, leading to [radio broadcasting](https://en.wikipedia.org/wiki/Radio_broadcasting), and later television. Today radio is an essential technology in global telecommunication networks, and the transmission medium underlying modern wireless devices.

**Задание 3.Выпишите из текста в тетрадь все подчеркнутые слова и выражения с переводом.**

**Задание 4.Прочитайте вслух международные слова. Обратите внимание на ударение.**

[physicist](https://en.wikipedia.org/wiki/Physicist)// electromagnetic// electromagnetism// interest// biologist// mathematical// theory// apparatus// [electric](https://en.wikipedia.org/wiki/Electric_field)// analysis// spiral// idea// apparatus// problem// actual// prize// meter// radiator// sphere// resonance// micrometer// experiment// radio// telegraphy// global// telecommunication// transmission// medium// modern

**Задание 5. Переведите на русский язык и проанализируйте слова с различными суффиксами, поделите слова на 2 группы-существительные и прилагательные.**

**Ответы.**

Nouns

Physicist

Existence

Equation

Frequency

Engineering

Validity

Professorship

Radiation

Capacity

Adjustment

Resonance

Researcher

Communication

Broadcasting

Transmission

Adjectives

Prosperous

Notable

Comprehensive

Prevalent

Wireless

Essential

**Задание 6. Переведите предложения на английский язык.**

1. Генрих Герц был немецким физиком.
2. Он первым доказал существование электромагнитных волн.
3. Единица частоты была названа «герц» в его честь.
4. Он родился в 1854 году в Гамбурге в процветающей и культурной семье.
5. Во время учебы он интересовался не только наукой, но и иностранными языками, изучал арабский язык и санскрит.
6. У него было 2 дочери.
7. Одна из них стала знаменитым биологом.
8. Во время учебы он проводил опыты с электромагнитными волнами.
9. Он был профессором -физиком и директором института физики в Бонне.
10. Он умер в возрасте 36 лет.
11. Его дочери не выходили замуж, т.о. у него нет потомков.
12. В 1864 году шотландский физик Максвел предложил теорию электромагнитных волн.
13. Согласно теории объединенные электрические и магнитные поля могут путешествовать в пространстве как электромагнитные волны.
14. Герц проанализировал уравнения Максвелла и доказал их достоверность.
15. Он также провел эксперимент, который доказал существование радиоволн очень высокой частоты.
16. В течение 10 лет многие исследователи использовали радиоволны в первых беспроводных телеграфных радиокоммуникационных системах, что привело к созданию радиовещания и позднее телевидения.

**Ответы.**

1) Heinrich Hertz was a German physicist.

2) He was the first to prove the existence of electromagnetic waves.

3) The frequency Unit was named "Hertz" in his honor.

4) He was born in 1854 in Hamburg in a prosperous and cultured family.

5) During his studies, he was interested not only in science, but also in foreign languages, and studied Arabic and Sanskrit.

6) He had 2 daughters.

7) One of them became a famous biologist.

8) During his studies, he conducted experiments with electromagnetic waves.

9) He was a Professor of physics and Director of the Institute of physics in Bonn.

10) He died at the age of 36.

11) His daughters did not marry, so he has no descendants.

12) In 1864, the Scottish physicist Maxwell proposed the theory of electromagnetic waves.

13) According to the theory, combined electric and magnetic fields can travel through space as electromagnetic waves.

14) Hertz analyzed Maxwell's equations and proved their validity.

15) He also conducted an experiment that proved the existence of radio waves.

16) For 10 years, many researchers used radio waves in the first wireless Telegraph radio communication systems, which led to the creation of radio broadcasting and later television.

**Задание 7. Выпишите из текста достижения Герца.**

First proved the existence of the [electromagnetic waves](https://en.wikipedia.org/wiki/Electromagnetic_waves) predicted by [James Clerk Maxwell](https://en.wikipedia.org/wiki/James_Clerk_Maxwell)'s [equations of electromagnetism](https://en.wikipedia.org/wiki/Maxwell%27s_equations).

Conducted his landmark research into electromagnetic waves.

Hertz took a position of Professor of Physics and Director of the Physics Institute in [Bonn](https://en.wikipedia.org/wiki/Bonn).

 Hertz did produce an analysis of Maxwell's equations, showing they did have more validity than the then prevalent "[action at a distance](https://en.wikipedia.org/wiki/Action_at_a_distance)" theories.

Was experimenting with a pair of [Riess spirals](https://en.wikipedia.org/wiki/Riess_spiral" \o "Riess spiral) in the autumn of 1886 when he noticed that discharging a [Leyden jar](https://en.wikipedia.org/wiki/Leyden_jar) into one of these coils would produce a spark in the other coil

**Задание 8. Составьте предложения.**

afterhertzreceivedhisprofessorshipatkarlsruhehewasexperimentingwithapairof[riessspirals](https://en.wikipedia.org/wiki/Riess_spiral)intheautumnof1886whenhenoticedthatdischarginga[leydenjar](https://en.wikipedia.org/wiki/Leyden_jar)intooneofthesecoilswouldproduceasparkintheothercoilwithanideaonhowtobuildanapparatushertznowhadawaytoproceedwiththeberlinprizeproblemof1879onprovingmaxwellstheoryalthoughtheactualprizehadexpireduncollectedin1882heusedaruhmkorff[coil](https://en.wikipedia.org/wiki/Induction_coil)drivensparkgapandonemeterwirepairasaradiatorcapacitysphereswerepresentattheendsforcircuitresonanceadjustmentshisreceiverwasasimplehalfwave[dipoleresonance](https://en.wikipedia.org/wiki/Dipole_antenna)witha[micrometersparkgap](https://en.wikipedia.org/wiki/Spark_micrometer)betweentheelementsthisexperimentproducedandreceivedwhatarenowcalled[radiowaves](https://en.wikipedia.org/wiki/Radio_wave)inthe[veryhighfrequency](https://en.wikipedia.org/wiki/Very_high_frequency)range

**Вместо работы с текстом или в качестве дополнительного задания можно предложить просмотр видео. Если группа слабая, то прочитать и перевести скрипт и выполнить задания по нему.**

**Great Minds: James clerk Maxwell, electromagnetic Hero (**ссылка https://yandex.ru/video/search?text=great+minds+james+clerk+maxwell+electromagnetic+hero&family).

All right quick: who are the three greatest and most influential physicists who ever lived? Isaak Newton? Albert Einstein and not a lot of people could but most physicists would probably agree that a lot of modern physics owes more to a man named James Clerk Maxwell than to anyone else who ever lived.

Maxwell was born in 1831in Edinborough, Scotland to a wealthy Scottish family. He published his first academic paper, a new method of mechanically plotting mathematical curves using a piece of twine, at the age of14.

So yeah, he was an early bloomer. By age25, he was appointed Chair of Natural Philosophy at University of Aberdeen. Natural philosophy ‘being what they called ‘physics’ back then.

Meaning that he was not just a professor; he was the head of the entire department. At 25. Within the next couple of years he made a discovery that you probably learned about in grade schools: he showed that Saturn’s rings were made of small particles swirling around the planet together. Before this nobody had any idea what the rings of Saturn were made of.

Scientists thought they might have been solid, but if they were, then the rings should have been banging into each other. Or even into the planet.

And if they were a liquid, why wouldn’t they break apart? Using maths Maxwell showed that the only way the rings of Saturn could remain relatively stable was if they were made of lots and lots of tiny particles, each one acting as an independent satellite orbiting the planet.

All of the tiny satellites in the same ring had to be moving in the same direction and at the same speed, or else they would crash into each other and the whole system would fly apart.

Maxwell also predicted that the rings would spread apart gradually until they disappeared, because of the effects of Saturn’s gravity. And that is happening. But until then we have rings!

More than a100 years later, the Voyager probes would fly by Saturn and send back some pictures proving that he was totally right. In 1860, Maxwell was laid off, when his college merged with another college and the other chair of natural philosophy got his job.

Can you imagine being the guy who made James Clerk Maxwell redundant?

That would be like if two karaoke teams merged together and Ariana Graide got bumped for me. After that, he took a professorship with King’s College in London, where he made what scientists Albert Einstein, Richard Feynman, and Max Planc considered the greatest discovery of the 20th century. He published a set of equations now known as Maxwell’s Equations, and proved that light, electricity, and magnetism all came the same force: what we now call the electromagnetic force.

This is still the greatest leap forward anyone has ever made in creating a grand unified theory of physics. These days we know that electricity is what you get when electrons move from one place to another.

And magnetism is what you get when elecrtons spin in the same direction.

We also know that light is what you get when electrons move from a higher to a low energy state. When they do that they release a photon. All of these are examples of electromagnetic force in action.

Basically, it’s how electrons shape the world around us.

But when Maxwell published his equations, electrons wouldn’t be discovered for anotherv30 years. He figured out that all of these things were connected by observing how magnets could affect currents, and currents could affect magnets.

He theorized that they were doing that with electromagnetic waves which spread out through space from their point of origin potentially forever.

He measured how fast these waves were moving, and found that they travelled at the speed of light.

And since nothing is as fast as light that meant electromagnetic waves and light must actually be different forms of the same thing.

The idea that energy could travel through space in waves blew away an old Newtonian idea of physic where gravity was the only thing that could affect objects at a distance.

And it paved the way for the development of quantum mechanics, plus like every thing Einstein did. Especially once we started figuring out that subatomic particles were a thing!

Without Maxwell’s understanding of electromagnetism, there also wouldn’t be any radio, television, or microwave ovens.

Maxwell, of course, made a lot of other discoveries too.

For one thing, he was a founder of kinetic theory of gases. This theory led to a new field of statistical physics, which introduced probability to the science of very small things, and was the precursor to quantum mechanics.

And! He produced the first colored photograph in the world, after he realized that the human eye only perceives three colors: red, blue, and green.

He created red, blue, and green filtered images and layered them together to make a colored photo of a taipan ribbon. This trichromatic prosecco was the forerunner too all modern color photography.

Maxwell died of abdominal cancer in 1879, at the age of 48. But he’d already transformed the field of physics forever.

So, who knows -if he’d lived for another 20 or 30 years, maybe we’d have floating cities and flying cars by now.

So, thanks to Maxwell, and thank you for watching this episode of SciShow, which was brought to you by our patrons on Patreon.

**Задания к фильму.**

**После первого просмотра**

A.Who are the three greatest and most influential physicists who ever lived?

1. **Isaak Newton// Albert Einstein// James Clerk Maxwell**

2. Isaak Newton// Louis Pasteur// James Clerk Maxwell

3. Louis Pasteur //Isaak Newton// // Marie Curie

4. Nikola Tesla// Louis Pasteur// James Clerk Maxwell

B. He published his first academic paper.

1. When he studied in the University

2. **When he was a teenager.**

3. When he was a professor.

4. In the old age.

C. By age25

1. He was married
2. He graduated from the university
3. **He received a high position at the university**
4. He published a scientific paper

D. Maxwell showed that the only way the rings of Saturn could remain relatively stable was

1. that they were solid
2. that they independently orbited the planet
3. that they were made of many big particles
4. due to the atmosphere

E.Rings of Saturn were

1. solid
2. liquid
3. **made of tiny particles**
4. dense

F. In 1860, Maxwell

1. was promoted
2. **was fired**
3. quitted his job
4. was demoted

G. According to the text the greatest discovery of the 20th century was

1. **that light, electricity, and magnetism all came the same force**
2. that light, electricity, and speed are called electromagnetic force
3. a set of equations now known as Electromagnetic Equations,
4. that electromagnetic force could affect currents, and currents could affect magnets.

H. What is not an example of electromagnetic force in action.

1. electrons move from one place to another.
2. electrons spin in the same direction.
3. electrons move from a higher to a low energy state.
4. **electrons shape the world around us**
5. electromagnetic waves and light
6. **must actually be different forms of the same thing**
7. can travel through space in waves
8. were the only things that could affect objects at a distance
9. were subatomic particles

J.Maxwell also produced

1. filtered images
2. **the first colored photograph in the world**
3. taipan ribbon
4. trichromatic prosecco

**После второго просмотра**

1. When and where was he born?

*Maxwell was born in 1831in Edinborough, Scotland to a wealthy Scottish family.*

2. What academic paper did he publish?

*He published his first academic paper, a new method of mechanically plotting mathematical curves using a piece of twine, at the age of14.*

3. What post did he get at the age of 5?

*By age25, he was appointed Chair of Natural Philosophy at University of Aberdeen. Meaning that he was not just a professor; he was the head of the entire department.*

4. What discovery did he make within the next couple of years?

*He made a discovery that you probably learned about in grade schools: he showed that Saturn’s rings were made of small particles swirling around the planet together.*

5. What did Maxwell predict about the rings?

*Maxwell also predicted that the rings would spread apart gradually until they disappeared, because of the effects of Saturn’s gravity.*

6. When was it proved?

*More than a100 years later, the Voyager probes would fly by Saturn and send back some pictures proving that he was totally right.*

7. In what college did he make the greatest discovery of the 20th century?

*After that, he took a professorship with King’s College in London, where he made what scientists Albert Einstein, Richard Feynman, and Max Planc considered the greatest discovery of the 20th century.*

8. What is magnetism?

*And magnetism is what you get when elecrtons spin in the same direction.*

9. What idea blew away the old Newtonian idea of physics?

*The idea that energy could travel through space in waves blew away an old Newtonian idea of physic where gravity was the only thing that could affect objects at a distance.*

10. When and why did Maxwell die? *died of abdominal cancer in 1879, at the age of 48.*

**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 3.**

**Тема занятия**

**Значение приборов радиотехники и электроники.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.
* Развитие навыков диалогической речи.

**Задачи занятия.**

Образовательные:

1. активизировать употребление лексики по теме «радиотехника и электроника»;
2. практиковать учащихся в переводе текста на русский язык;
3. развивать навыки логического построения вопросов;
4. совершенствовать грамматические навыки (причастие 2);
5. развивать навыки работы с интернетом (нахождение нужной информации).

Развивающие:

1. развитие умения находить в интернете нужную информацию;
2. развитие эрудиции учащихся;
3. развитие умения переводить с английского языка на русский;
4. развитие навыков самостоятельной работы с текстом;
5. развитие навыков ответа на вопросы;

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной компетентности (готовность к взаимодействию; освоению новых способов деятельности) и коммуникативной компетентности (готовность и способность осуществлять устную коммуникации);
3. расширение кругозора обучающихся.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1. Речевая зарядка. Чтение и пересказ текста.**

Radio is the first wireless mode of communication. Radios send messages by radio waves instead of wires. German scientist Heinrich Hertz proved the existence of radio waves, which occur in nature.

In 1895, a young Italian named Gugliemo Marconi invented what he called “the wireless telegraphs” while experimenting in his parents ' attic. He used radio waves to transmit Morse code and the instrument he used became known as the radio. In 1906, Marconi shared the Nobel Prize for physics with Ferdinand Braun, a German, in recognition of their contributions to the development of wireless telegraphy. Radio works by changing sounds or signals into radio waves, which travel through air, space, and solid objects, and the radio receiver changes them back into the sounds, words, and music we hear.

A radio broadcast is a one-way transmission, originating from a radio station. In the early 1920s, radio played an important role in people's lives, and over 500 stations were broadcasting news, music, sports, drama, and variety shows. By the 1930s, most households in the U. S. and Europe had at least one radio. In the evening, the family gathered around a big " console” that was usually located in the living room, where they might spend hours listening to variety shows or comedies from favorites like Jack Benny or Edgar Bergen and Charlie McCarthy.

Everyone used their imagination to visualize all of the characters in their favorite shows. This was the beginning of the «Golden Age of Radio.”

**Задание 2. Ответьте на вопрос.** **What radio electronic devices do you know? What do you know about these devices? (Найдите краткую информацию в интернете).**

**Ответы.**

Receiver

Transmitter

Antenna

Filter

Amplifier

**Задание 3. Прочитайте текст на тему « Радиоприёмник».**

In [radio communications](https://en.wikipedia.org/wiki/Radio_communications), a **radio receiver** (**radio**) is an electronic device that receives [radio waves](https://en.wikipedia.org/wiki/Radio_wave) and converts the information ***carried by them*** to a usable form. ***It is used with an***[***antenna***](https://en.wikipedia.org/wiki/Antenna_(radio)). The antenna intercepts radio waves ([electromagnetic waves](https://en.wikipedia.org/wiki/Electromagnetic_wave)) and converts them to tiny [alternating currents](https://en.wikipedia.org/wiki/Alternating_current) ***which are applied to the receiver***, and the receiver extracts ***the desired information***. The receiver uses [electronic filters](https://en.wikipedia.org/wiki/Electronic_filter) to separate ***the desired***[***radio frequency***](https://en.wikipedia.org/wiki/Radio_frequency) signal from all the other ***signals picked up by the antenna***, an [electronic amplifier](https://en.wikipedia.org/wiki/Electronic_amplifier) to increase the power of the signal for further processing, and finally recovers the desired information through [demodulation](https://en.wikipedia.org/wiki/Demodulation).

***The information produced by the receiver*** may be in the form of sound, images, or data. Modulation is a process of adding information to a radio carrier wave. Two types of modulation ***are used in analog radio broadcasting systems***; AM and FM.

In [amplitude modulation](https://en.wikipedia.org/wiki/Amplitude_modulation) (AM) the strength of the ***radio signal is varied by the audio signal***.  [AM broadcast bands](https://en.wikipedia.org/wiki/AM_broadcast_band) are between 148 and 283 kHz in the [longwave](https://en.wikipedia.org/wiki/Longwave) range, and between 526 and 1706 kHz in the [medium frequency](https://en.wikipedia.org/wiki/Medium_frequency) (MF) range of the [radio spectrum](https://en.wikipedia.org/wiki/Radio_spectrum). In [frequency modulation](https://en.wikipedia.org/wiki/Frequency_modulation) (FM) the [frequency](https://en.wikipedia.org/wiki/Frequency) of the radio signal ***is varied slightly*** by the audio signal. [FM broadcasting](https://en.wikipedia.org/wiki/FM_broadcasting) ***is permitted*** in the [FM broadcast bands](https://en.wikipedia.org/wiki/FM_broadcast_band) between about 65 and 108 MHz in the [very high frequency](https://en.wikipedia.org/wiki/Very_high_frequency) (VHF) range.

A radio receiver may be a separate piece of electronic equipment, or an [electronic circuit](https://en.wikipedia.org/wiki/Electronic_circuit) within another device. Radio receivers are components of communications, broadcasting, remote control, and network systems. In [consumer electronics](https://en.wikipedia.org/wiki/Consumer_electronics), the terms radio and radio receiver ***are often used specifically for receivers*** ***designed to reproduce*** sound transmitted by [radio broadcasting](https://en.wikipedia.org/wiki/Radio_broadcasting) stations, historically the first mass-market [commercial radio](https://en.wikipedia.org/wiki/Commercial_radio) application.

An antenna typically consists of an arrangement of metal conductors.

The antenna ***may be enclosed*** inside the receiver’s case, ***attached to the outside of the receiver***, or ***mounted separately*** and ***connected to the receiver by a cable***.

**Задание 4. Выпишите из текста в тетрадь подчеркнутые слова и выражения с переводом.**

**Задание 5. Выпишите из текста выражения с причастием 2 и переведите их на русский язык (в тексте в варианте для учителя эти выражения выделены курсивом и жирным шрифтом).**

**Задание 6. Распределите вопросы в порядке следования текста и ответьте на них.**

What is the function of the antenna?

What is radio receiver?

What is modulation?

What does an antenna typically consists of?

What does the receiver use to separate radio signal from all the other signals?

What types of modulation do you know?

In what way is an antenna attached to the receiver?

What does the receiver use to increase the power of the signal?

In what form can the information produced by the receiver come?

What forms of radio receivers do you know?

**Ответы.**

1. What is radio receiver? *An electronic device that receives*[*radio waves*](https://en.wikipedia.org/wiki/Radio_wave)*and converts the information carried by them to a usable form.*

2. What is the function of the antenna? *The antenna intercepts radio waves (*[*electromagnetic waves*](https://en.wikipedia.org/wiki/Electromagnetic_wave)*) and converts them to tiny*[*alternating currents*](https://en.wikipedia.org/wiki/Alternating_current)*which are applied to the receiver, and the receiver extracts the desired information.*

3. What does the receiver use to separate radio signal from all the other signals? [*Electronic filters*](https://en.wikipedia.org/wiki/Electronic_filter)

4. What does the receiver use to increase the power of the signal? *An*[*electronic amplifier*](https://en.wikipedia.org/wiki/Electronic_amplifier)

5. In what form can the information produced by the receiver come? *In the form of sound, images, or data.*

6. What is modulation? *Modulation is a process of adding information to a radio carrier wave.*

7. What types of modulation do you know? *AM* [*amplitude modulation*](https://en.wikipedia.org/wiki/Amplitude_modulation) *and FM* [*frequency modulation*](https://en.wikipedia.org/wiki/Frequency_modulation)*.*

8. What forms of radio receivers do you know? *A radio receiver may be a separate piece of electronic equipment, or an*[*electronic circuit*](https://en.wikipedia.org/wiki/Electronic_circuit)*within another device. Radio receivers are components of communications, broadcasting, remote control, and network systems.*

9. What does аn antenna typically consists of? *An arrangement of metal conductors.*

10. In what way is an antenna attached to the receiver? *The antenna may be enclosed inside the receiver’s case, attached to the outside of the receiver, or mounted separately and connected to the receiver by a cable.*

**Дополнительный текст для чтения и перевода.**

**GPS Receivers**

A GPS Receiver is a L-band radio processor capable of [solving the navigation equations](http://www.navipedia.net/index.php/An_intuitive_approach_to_the_GNSS_positioning) in order to determine the user position, velocity and precise time (PVT), by processing the signal broadcasted by GPS satellites.

[The GNSS Market Report, Issue 3](http://www.navipedia.net/index.php/GNSS_Market_Report#Report_Overview), provided by European GNSS Agency, has estimated that the number of GPS enabled devices in 2012 were about two billion units.

Any navigation solution provided by a [GNSS Receiver](http://www.navipedia.net/index.php/GNSS_Receivers_General_Introduction) is based on the computation of its distance to a set of satellites, by means of extracting the propagation time of the incoming signals traveling through space at the speed of light, according to the satellite and receiver local clocks.

Notice that satellites are always in motion, so previous to obtaining the navigation message, the satellite’s signal is detected and tracked. The [receiver’s functional blocks](http://www.navipedia.net/index.php/Generic_Receiver_Description) that perform these tasks are the antenna, the front-end and the baseband signal processing (in charge of acquiring and tracking the signal).

Once the signal is acquired and tracked, the receiver application decodes the navigation message and estimates the user position. The Navigation Message includes:

* Ephemeris parameters, needed to compute the satellite’s coordinates.
* Time parameters and Clock Corrections, to compute satellite clock offsets and time conversions.
* Service Parameters with satellite health information.
* Ionospheric parameters model needed for single frequency receivers.
* Almanacs, that allow computing the position of all satellites but with a lower accuracy than the ephemeris.

The ephemeris and clocks parameters are usually updated every two hours, while the almanac is updated at least every six days.

The GPS Signal In Space is specified in the following documents:

* IS-GPS-200E: Interface between the space segment of the Global Positioning System and the navigation user segment of the GPS for radio frequency link 1 (L1) and link 2 (L2)
* IS-GPS-705A: interface between the space segment of the Global Positioning System and the navigation user segment of the GPS for radio frequency link 5 (L5).
* IS-GPS-800: interface between the space segment of the Global Positioning System and the navigation user segment of the GPS for signal L1 Civil (L1C) transmitted in the frequency band of L1.

Types of GPS Receivers

Receivers can be categorized by [their type](http://www.navipedia.net/index.php/Receiver_Types) in different ways, and under different criteria. For instance, receivers can be stand-alone, or may benefit from corrections or measurements provided by augmentation system or by receivers in the vicinities ([DGPS](http://www.navipedia.net/index.php/Differential_GNSS)). Moreover receivers might be generic all purpose receivers or can be built specifically having the [application](http://www.navipedia.net/index.php/GNSS_Applications) in mind: navigation, accurate positioning or timing, surveying, etc. In addition to position and velocity, GPS receivers also provide time. An important amount of economic activities, such wireless telephone, electrical power grids or financial networks rely on precision timing for synchronization and operational efficiency. GPS enables the users to determine the time with a high precision without needing to use expensive atomic clocks.

The initial purpose of the GPS system was military but with the free availability of GPS signals and the availability of cheap GNSS receivers, the GPS technology is having a pervasive use in civil, industrial, scientific areas. Currently the use of GPS in Civil Applications is generalized, and it is well known that GPS Receivers have been spread very fast as well as the manufacturers dedicated to this (e.g. [CSR](http://www.csr.com/), [BroadCom](http://www.broadcom.com/), [Garmin](http://www.garmin.com/),...).

**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 4.**

**Тема занятия**

**Радиоэлектронные системы.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.
* Развитие навыков монологической речи.

**Задачи занятия.**

Образовательные:

1. активизировать употребление лексики по теме «Радиоэлектронные системы»;
2. практиковать учащихся в переводе с русского языка на английский язык;
3. совершенствовать умение задавать вопросы н английском языке;
4. развивать навыки устной монологической речи;
5. совершенствовать грамматические навыки (страдательный залог);

Развивающие:

1. развитие умения находить в тексте нужную информацию;
2. развитие эрудиции учащихся;
3. развитие умения переводить с английского языка на русский;
4. развитие навыков самостоятельной работы с текстом;
5. развитие навыков работы с интернетом;

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной компетентности (готовность к взаимодействию; освоению новых способов деятельности) и коммуникативной компетентности (готовность и способность осуществлять устную коммуникации);
3. расширение кругозора обучающихся.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1. Прочитайте и переведите текст «Радиоэлектронные системы».**

Radio systems and systems are widely used in scientific research, medicine, metrology, geology, physics, studies of near-Earth space, near and far space.(Where…)

Radar systems and complexes belong to a class of information systems and play a decisive role in modern science and technology (What…to). Radar, radio navigation systems, traffic control ground, air and space objects, optical and laser systems - this is an incomplete list of tasks in this direction. Radioelectronic systems play immeasurably great role in aviation and astronautics (in what fields). It is impossible to imagine a global satellite system GLONASS and GPS without modern radio equipment.

In 1905 Hugo Gernsback established Electro Importing Company to sell radio components and electrical supplies by mail order (with what purpose). The catalogs had detailed instructions on projects like a wireless telegraph outfit and were the predecessor of his first magazine, [*Modern Electrics*](https://en.wikipedia.org/wiki/Modern_Electrics) (April 1908).

In 1925 they launched the radio station [WRNY](https://en.wikipedia.org/wiki/WRNY_(defunct)). This was the first radio station to broadcast experimental television starting in 1928 (What).

Hugo Gernsback first used the term "Television" in the December 1909 issue of his Modern Electrics magazine (When). By the late 1940s, television stations and home receivers were becoming a reality. Gernsback felt his *Radio-Craft* magazine needed a new name; it should be short and contain the word "Television". When the staff could not decide on a name, they sent a survey to 500 readers with 13 proposed names. Over 50% of the readers selected a name that was included just to expand the list, *Radio-Electronics*. Gernsback accepted his reader's verdict and used the title that did not use the magic word of the period. *Radio-Electronics* appeared as a subtitle in early 1948 and became the primary title in October 1948.

**1950s and 1960s**

Early radios and televisions used [vacuum tubes](https://en.wikipedia.org/wiki/Vacuum_tube) that had an operating lifetime of a year or so (What kind of). (The transistor would not become dominant until the 1970s.) A typical television would have a dozen vacuum tubes and one or more would fail each year. Radio and TV repair shops were numerous and located in every neighborhood (Where). Technological advances such as the transistor, color television, stereo audio, computers and space satellites were prominently covered in the 1950s and 1960s. The typical *Radio-Electronics* cover would show a person interacting with new technology (Whom).

**Задание 2.Задайте вопросы к подчеркнутым словам и словосочетаниям, используя указанные в скобках вопросительные слова.**

**Ответы**

1. Where are radio systems and systems widely used?
2. What do Radar systems and complexes belong to?
3. In what fields do radio electronic systems play immeasurably great role?
4. With what purpose did Hugo Gernsback establish Electro Importing Company?
5. What station did they launch in 1928?
6. When did Hugo Gernsback first use the term "Television"?
7. What kind of electronic components did early radios and televisions use?
8. Where were Radio and TV repair shops located?
9. Whom did the typical Radio-Electronics cover show?

**Задание 3. Замените формы глаголов в активном залоге на формы глаголов в пассивном залоге.**

**Например**

Radioelectronic systems play an immeasurably great role in aviation and astronautics.

An immeasurably great role in aviation and astronautics is played by radioelectronic systems.

**Задание 4 .Найдите в тексте английские эквиваленты.**

1. Широко используются в научных исследованиях
2. Принадлежат к классу информационных систем
3. Неполный список задач в этом направлении
4. Играют неизмеримо большую роль в авиации
5. Современное радиооборудование
6. Оборудование беспроводного телеграфа
7. Подробные инструкции по проектам
8. Становились реальностью
9. Содержать слово «телевидение»
10. Многочисленный
11. Технологические преимущества
12. Человек, использующий новую технологию.

**Ответы**

1. are widely used in scientific research
2. belong to a class of information systems
3. an incomplete list of tasks in this direction
4. play immeasurably great role in aviation
5. modern radio equipment
6. wireless telegraph outfit
7. detailed instructions on projects
8. were becoming a reality
9. contain the word "Television"
10. numerous
11. Technological advances
12. a person interacting with new technology

**Задание 5. Подготовьте краткий пересказ текста.**

**Задание 6. Составьте сообщение (10-15 предложений) о радиоэлектронных системах.**

**Задание 7. Выполните грамматический тест.**

Выберите правильный ответ.

1. “Have you ever been to France?” “Yes, I \_\_\_\_\_ there last August.”  
a) had been **b) went** c) have been d) were  
2. It’s a small town in the south \_\_\_\_\_ England.  
a) – b) from c) to **d) of**3. Couldn’t you go a little faster? I’m \_\_\_\_\_ a hurry.  
a) on **b) in** c) at d) of  
4. I usually wear skirts, but today I \_\_\_\_\_ trousers.  
a) wears b) wear c) wearing **d) am wearing**  
5. It’s Mr. Smith, \_\_\_\_\_?  
**a) isn’t it** b) isn’t he c) is it d) is not it  
6. One of my neighbors has \_\_\_\_\_ me to tea.  
**a) invited** b) pleased c) suggested d) welcomed  
7. I’m \_\_\_\_\_ in the news.  
a) exciting b) interesting **c) interested** d) interest  
8. Can we \_\_\_\_\_ at your house and go to the party together?  
a) come b) see c) find **d) meet**  
9. How can I \_\_\_\_\_ to the post-office?  
a) reach **b) get** c) find d) arrive  
10. “Must I take my umbrella?” “No, you \_\_\_\_\_. It’s not going to  
rain.”  
a) mustn’t **b) needn’t** c) have to d) don’t

**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 5.**

**Тема занятия**

**Эксплуатация транспортного радиоэлектронного оборудования.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.
* Развитие навыков диалогической речи.

**Задачи занятия.**

Образовательные:

1. активизировать употребление лексики по теме «Транспортное радиоэлектронное оборудование» .
2. практиковать учащихся в переводе текста на английский язык;
3. совершенствовать умение задавать вопросы н английском языке;
4. развивать навыки устной монологической речи;
5. совершенствовать грамматические навыки (страдательный залог);

Развивающие:

1. развитие умения находить в тексте нужную информацию;
2. развитие эрудиции учащихся;
3. развитие навыков самостоятельной работы с текстом;
4. развитие навыков работы с интернетом;

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной компетентности (готовность к взаимодействию; освоению новых способов деятельности) и коммуникативной компетентности (готовность и способность осуществлять устную и письменную коммуникацию);
3. расширение кругозора обучающихся.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1. Перевод текста без словаря.**

In [electronics](https://en.wikipedia.org/wiki/Electronics) and [telecommunications](https://en.wikipedia.org/wiki/Telecommunications) a **transmitter** or radio transmitter is an [electronic device](https://en.wikipedia.org/wiki/Electronic_device) which produces [radio waves](https://en.wikipedia.org/wiki/Radio_wave) with an [antenna](https://en.wikipedia.org/wiki/Antenna_(radio)). The transmitter itself generates a [radio frequency](https://en.wikipedia.org/wiki/Radio_frequency) [alternating current](https://en.wikipedia.org/wiki/Alternating_current), which is applied to the antenna. When excited by this alternating current the antenna radiates radio waves.

Transmitters are necessary component parts of all electronic devices that communicate by [radio](https://en.wikipedia.org/wiki/Radio_communication), such as [radio](https://en.wikipedia.org/wiki/Radio_broadcasting) and [television](https://en.wikipedia.org/wiki/Television_broadcasting) [broadcasting](https://en.wikipedia.org/wiki/Broadcasting) stations, [cell phones](https://en.wikipedia.org/wiki/Cell_phone), [walkie-talkies](https://en.wikipedia.org/wiki/Walkie-talkie), [wireless computer networks](https://en.wikipedia.org/wiki/Wireless_LAN), [Bluetooth](https://en.wikipedia.org/wiki/Bluetooth) enabled devices, [garage door openers](https://en.wikipedia.org/wiki/Garage_door_opener), [two-way radios](https://en.wikipedia.org/wiki/Two-way_radio) in aircraft, ships, spacecraft, [radar](https://en.wikipedia.org/wiki/Radar) sets and navigational beacons. The term transmitter is usually limited to equipment that generates radio waves for [communication](https://en.wikipedia.org/wiki/Communication_engineering) purposes; or [radiolocation](https://en.wikipedia.org/wiki/Radiolocation), such as [radar](https://en.wikipedia.org/wiki/Radar) and navigational transmitters. the antenna, and often the building it is housed in.

A transmitter can be a separate piece of electronic equipment, or an electrical circuit within another electronic device. A transmitter and a [receiver](https://en.wikipedia.org/wiki/Radio_receiver) combined in one unit is called a [transceiver](https://en.wikipedia.org/wiki/Transceiver). The term transmitter is often abbreviated "XMTR" or "TX" in technical documents. The purpose of most transmitters is [radio communication](https://en.wikipedia.org/wiki/Radio_communication) of information over a distance. The information is provided to the transmitter in the form of an electronic signal, such as an [audio](https://en.wikipedia.org/wiki/Audio_signal) (sound) signal from a microphone, a [video](https://en.wikipedia.org/wiki/Video_signal) (TV) signal from a video camera, or in [wireless networking](https://en.wikipedia.org/wiki/Wireless_networking) devices a [digital signal](https://en.wikipedia.org/wiki/Digital_signal_(electronics)) from a computer. The transmitter combines the information signal to be carried with the radio frequency signal which generates the radio waves, which is called the [carrier signal](https://en.wikipedia.org/wiki/Carrier_signal). This process is called [modulation](https://en.wikipedia.org/wiki/Modulation).

A practical radio transmitter usually consists of these parts:

A [power supply](https://en.wikipedia.org/wiki/Power_supply) circuit to transform the input electrical power to the higher [voltages](https://en.wikipedia.org/wiki/Voltage) needed to produce the required power output.

An [electronic oscillator](https://en.wikipedia.org/wiki/Electronic_oscillator) circuit to generate the [radio frequency](https://en.wikipedia.org/wiki/Radio_frequency) signal.

A [modulator](https://en.wikipedia.org/wiki/Modulator) circuit to add the information to be transmitted to the carrier wave produced by the oscillator. The information is provided to the transmitter either in the form of an [audio signal](https://en.wikipedia.org/wiki/Audio_signal), which represents [sound](https://en.wikipedia.org/wiki/Sound), a [video signal](https://en.wikipedia.org/wiki/Video_signal), or for data in the form of a [binary](https://en.wikipedia.org/wiki/Binary_numeral_system) [digital](https://en.wikipedia.org/wiki/Digital_data) signal.

An RF [amplifier](https://en.wikipedia.org/wiki/Amplifier) to increase the power of the signal, to increase the range of the radio waves.

An [impedance matching](https://en.wikipedia.org/wiki/Impedance_matching) ([antenna tuner](https://en.wikipedia.org/wiki/Antenna_tuner)) circuit to match the [impedance](https://en.wikipedia.org/wiki/Electrical_impedance) of the transmitter to the impedance of the antenna If these impedances are not equal, it causes a condition called [standing waves](https://en.wikipedia.org/wiki/Standing_wave), in which the power is reflected back from the antenna toward the transmitter, wasting power and sometimes overheating the transmitter.

**Задание 2. Выпишите из текста подчеркнутые слова и выражения с переводом.**

In this section, we will look at the radio equipment used in aircrafts. There is no difference between that in airplanes or in helicopters. This section will cover the ***following*** basics:

[Transceiver](http://www.helistart.com/RadioEquipment.aspx#Trans)

[Microphone](http://www.helistart.com/RadioEquipment.aspx#Mic)

[Headset](http://www.helistart.com/RadioEquipment.aspx#HeadSet)

[Intercom](http://www.helistart.com/RadioEquipment.aspx#Inter)

[Audiopanel](http://www.helistart.com/RadioEquipment.aspx#Audio)

[Handheld](http://www.helistart.com/RadioEquipment.aspx#HandHeld)

**Transceiver**

The transceiver is the heart of the system, and consists of 2 sub-systems: the **transmitter** and the *receiver*, hence the name transceiver. The transceiver works in the VHF (Very High Frequency) radio spectrum range (General / Civil Aviation). All communications use amplitude modulation (AM). To communicate with another party or facility обьект , both parties must agree upon the frequency to use, otherwise there isn’t an effective communication channel. These frequencies range from 118,000 to 136,975 MHz. For an overview краткий обзор of common frequencies, see the [Communications Frequencies’ Overview](http://www.helistart.com/CommFreqOverview.aspx). The resolution разрешение of the frequencies used has typically been 0.050 MHz, although nowadays you may also encounter 0.025Mhz. This means that the frequency selected is a multiple of 0.050 or 0.025 MHz.

The only action you are required to take is to choose the right frequency. What is more, all digital radios enable you to store those that are most commonly used (e.g. control, tower, departure, centre, unicom, etc.).

**Microphone**

Of course, you need a microphone to talk in to. All hand held портативный карманный microphones have a Push-To-Talk button (PTT button). Note that your transceiver will either be ***transmitting*** or ***receiving***, but it will never do both at the same time (this is called Simplex communication симплексная связь, as opposed to the Duplex mode, where you can simultaneously speak and listen). You must keep the distance between your lips and the microphone to almost zero, which enables your voice to be broadcast at maximum amplitude despite the noise in the cockpit кабина пилотов.

**Headset**

In order to hear what you are ***being*** told, you need to use earphones. There are many different kinds available. For example, you can utilise an earset with just one earphone, ***meaning*** that you can listen to ATC air traffic control управление воздушным движением and the environment around you or your passengers. You also can use a pair of earphones (headset), which will reduce much of the noise in the cockpit. For the quietest experience, headsets with electronic noise cancellation technology are available. You will probably want to experiment before ***determining*** your favourite, but, these days, ***using*** a headset is common sense.

Headsets also come with boom microphones подвесной микрофон , which take away the need to return the microphone to its holder every time you have finished ***using*** it.

**Intercom**

Whenever you wear a headset, ***talking*** to your passengers is impractical. This is where the intercom comes into play, since it enables everybody ***wearing*** a headset to talk to each other. This means that every passenger should wear one. This configuration is ***becoming*** more and more common in the general aviation fleet. The intercom system also inter-connects with the transceiver, thereby ***allowing*** the pilot to talk to both passengers and ATC.

**Audiopanel**Audiopanels come in handy when ***using*** two transceivers. With 2 transceivers, you have the ability to listen to two channels simultaneously, for example, to ground control наземное управление and the tower вышка . The audiopanel enables you to: select different configurations, such as ***transmitting*** on channel one or two (a channel now is one of the two transceivers) while ***listening to*** both; listen to the cabin speakers, the headset or both; assign назначать a channel to the cabin speaker or choose to always make the chosen channel audible on the cabin speakers, and so on. By using two transceivers with an audiopanel, you also can keep each transceiver’s settings настройка транссивера at the desired position, since you do not have to switch frequency every time you use it.

**Handheld**

As well as installed transceivers, it is also possible to obtain handheld models, which play an important role in circumstances where the installed systems stop ***functioning*** (for example, due to a power failure сбой питания , or a blank display пустой дисплей). Modern digital handheld transceivers are a remarkable piece of technology, with a great deal of functionality within a small unit. Handhelds are also useful for ***monitoring*** communications on the ground, from which you can learn a great deal.

**Uniden BC72XLT Bearcat Handheld Scanner (Black)**

This fairly priced scanner is particularly well suited to ***listening*** to aviation communications. It features a 100 channel memory, which is organized into 10 memory banks of 10 channels each. The Uniden BC72XLT is very light and small, and can easily be carried with you. It is a very ***exciting*** piece of technology, which will bring you much closer to ***understanding*** how aviation communications work.

**Задание3.Прочитайте и переведите текст.**

**Задание 4. Выпишите из текста слова и выражения с инговыми формами и определите их грамматическую функцию. (в тексе для учителя инговые формы выделены жирным курсивом).**

**Задание 5. Задайте 10 вопросов к тексту (работа в команде).Ответьте на эти вопросы.**

**Примерные вопросы.**

1. At what frequency does transreceiver work? *The transceiver works in the VHF (Very High Frequency).*

2. What is the difference between simplex and duplex communication? *Note that your transceiver will either be transmitting or receiving, but it will never do both at the same time (this is called Simplex communication симплексная связь, as opposed to the Duplex mode, where you can simultaneously speak and listen).*

3. Why must you keep the distance between your lips and the microphone to almost zero? *It enables your voice to be broadcast at maximum amplitude despite the noise in the cockpit.*

4. What kinds of earphones do you know?There are many different kinds available. For example, you can utilise an earset with just one earphone, *meaning* that you can listen to ATC air traffic control and the environment around you or your passengers. You also can use a pair of earphones (headset), which will reduce much of the noise in the cockpit. For the quietest experience, headsets with electronic noise cancellation technology are available. Headsets also come with boom microphones, which take away the need to return the microphone to its holder every time you have finished *using* it.

5. What should every passenger wear? Every passenger should wear intercom.

6. What is the function of Intercom? *The intercom system also inter-connects with the transceiver, thereby allowing the pilot to talk to both passengers and ATC.*

7. When do we use audiopanel? *Audiopanels come in handy when using two transceivers. With 2 transceivers, you have the ability to listen to two channels simultaneously, for example, to ground control and the tower.*

8. Why is the audiopanel convenient? *By using two transceivers with an audiopanel, you also can keep each transceiver’s settings at the desired position, since you do not have to switch frequency every time you use it.*

9. What do you know about modern digital handheld transceivers? *a remarkable piece of technology, with a great deal of functionality within a small unit. Handhelds are also useful for monitoring communications on the ground, from which you can learn a great deal.*

10. What are the advantages of Uniden BC72XLT Bearcat Handheld Scanner (Black)?*This fairly priced scanner is particularly well suited to listening to aviation communications. It features a 100 channel memory, which is organized into 10 memory banks of 10 channels each. The Uniden BC72XLT is very light and small, and can easily be carried with you. It is a very exciting piece of technology, which will bring you much closer to understanding how aviation communications work.*

**Задание 6.Найти в Интернете и выписать в тетрадь краткую дополнительную информацию о транспортном радиоэлектронном оборудовании (10-15 предложений).**

**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 6.**

**Тема занятия**

**Радионавигационные приборы.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.
* Развитие навыков диалогической речи.

**Задачи занятия.**

Образовательные:

1. активизировать употребление лексики по теме «Радионавигационные приборы»;
2. практиковать учащихся в переводе текста на русский язык;
3. совершенствовать умение задавать вопросы на английском языке;
4. развивать навыки устной монологической речи;
5. совершенствовать навыки составления предложений;
6. совершенствовать грамматические навыки (будущее время);

Развивающие:

1. развитие эрудиции учащихся;
2. развитие умения переводить с английского языка на русский;
3. развитие навыков самостоятельной работы с текстом;
4. развитие навыков работы в команде;
5. развитие навыков работы с интернетом;
6. развитие умения грамотно оформлять свою речь на английском языке;

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной компетентности (готовность к взаимодействию; освоению новых способов деятельности) и коммуникативной компетентности (готовность и способность осуществлять устную коммуникации);
3. расширение кругозора обучающихся.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1. Составьте предложения с данными словами и выражениями.**

[Transceiver](http://www.helistart.com/RadioEquipment.aspx#Trans)//[Microphone](http://www.helistart.com/RadioEquipment.aspx#Mic)//[Headset](http://www.helistart.com/RadioEquipment.aspx#HeadSet)//[Intercom](http://www.helistart.com/RadioEquipment.aspx#Inter)//[Audiopanel](http://www.helistart.com/RadioEquipment.aspx#Audio)//[Handheld](http://www.helistart.com/RadioEquipment.aspx#HandHeld)//consists of //facility //overview// [Communications Frequencies// Overview](http://www.helistart.com/CommFreqOverview.aspx) //resolution // encounter// tower//hand held// Simplex communication //simultaneously// noise// cockpit //ATC air traffic control // reduce//cancellation//*determining//*boom microphones //aviation fleet//ground control //the tower // assign // transceiver’s settings //installed// to obtain// circumstances// power failure// blank display// fairly priced

**Задание 2. Выпишите из текста в тетрадь подчеркнутые слова и выражения с переводом.**

**Задание 3. Прочитайте и переведите текст.**

The [Galileo](http://www.navipedia.net/index.php/GALILEO_General_Introduction) System will be an independent, global, European-controlled, satellite-based navigation system and will provide a number of guaranteed services to users equipped with Galileo-compatible receivers.

Basic elements of a generic видовой непатентованный [GNSS Global Navigation Satellite System Глобальная спутниковая навигационная система Receiver](http://www.navipedia.net/index.php/GNSS_Receivers_General_Introduction) are an antenna with pre-amplification, an L-band длинноволновой диапазон radio frequency section, a microprocessor, an intermediate-precision oscillator, a feeding source, some memory for data storage, and an interface with the user. The calculated position is referred to the antenna phase centre.

A Galileo Acquisition приобретение Receiver Architecture

The Galileo global navigation satellite system will employ many new methods and technologies to offer superior performance превосходная работа and reliability.

A GALILEO Receiver is a device capable of determining a navigation solution by processing the signal broadcasted by Galileo satellites. Once the signal is acquired and tracked, the receiver application decodes the navigation message. The navigation data contain all the parameters that enable the user to perform positioning service сервис позиционирования . The four types of data needed to perform positioning are:

Ephemeris which are needed to indicate the position of the satellite to the user receiver.

Time and clock correction parameters which are needed to compute pseudo-range.

Service parameters which are needed to identify the set of navigation data, satellites, and indicators of the signal health.

Almanac which are used to compute the position of all the satellites in the constellation with a reduced accuracy, so that the receivers improve the time needed for the initial satellite acquisition process.

**Задание 4. Задайте 13 вопросов к тексту. Ответьте на эти вопросы. (Работа в группах).**

**Примерные вопросы.**

1. What is Galileo system? *The*[*Galileo*](http://www.navipedia.net/index.php/GALILEO_General_Introduction)*System will be an independent, global, European-controlled, satellite-based navigation system.*
2. What does it provide? *provide a number of guaranteed services to users equipped with Galileo-compatible receivers.*
3. What does it consist of? *an antenna with pre-amplification, an L-band radio frequency section, a microprocessor, an intermediate-precision oscillator, a feeding source, some memory for data storage, and an interface with the user.*
4. What does it employ for the better performance? *many new methods and technologies to offer superior performance превосходная работа and reliability.*
5. What is the function of the Galileo Receiver?*determining a navigation solution by processing the signal broadcasted by Galileo satellites.*
6. How does it work? *Once the signal is acquired and tracked, the receiver application decodes the navigation message.*
7. What are the 4 types of data needed to perform positioning?*Ephemeris, Time and clock correction parameters, Service parameters, Almanac.*
8. What does Ephemeris indicate? *the position of the satellite to the user receiver*
9. What type of parameters identifies the set of navigation data? *Service parameters*
10. What computes the position of the satellites in the constellation? *Almanac*
11. Why do we need time and clock correction parameters? *to compute pseudo-range.*
12. What do receivers improve? *the time needed for the initial satellite acquisition process*

**Задание 5. Выпишите из текста все предложения с будущим временем и переведите их на русский язык.**

**Задание 6. Найдите в Интернете краткую информацию о радионавигационных приборах. Составьте краткое сообщение (10-15 предложений).**

**ПРАКТИЧЕСКОЕ ЗАНЯТИЕ 7.**

**Тема занятия**

**Бытовое радиоэлектронное оборудование.**

**Пояснительная записка.**

Данная методическая разработка предлагает проведение практического занятия по английскому языку на 3 курсе в группе 3МРАП 9-1. Данное практическое занятие разработано на основе рабочей программы учебной дисциплины ОГСЭ.03 «Иностранный язык».

Рабочая программа учебной дисциплины является частью программы подготовки специалистов среднего звена по специальности 11.01.01. Монтажник радиоэлектронной аппаратуры и приборов.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу программы подготовки специалистов среднего звена.

**Цели занятия.**

* Развитие навыков чтения и перевода.
* Развитие навыков самостоятельной работы с текстом.
* Пополнение лексического запаса.
* Совершенствование грамматических навыков.

**Задачи занятия.**

Образовательные:

1. практиковать учащихся в переводе текста на русский язык;
2. совершенствовать умение отвечать на вопросы на английском языке;
3. развивать навыки нахождения в тексте нужной информации;
4. развивать навыки устной монологической речи;
5. совершенствовать грамматические навыки (произнесение числительных);

Развивающие:

1. развитие эрудиции учащихся;
2. развитие умения переводить с английского языка на русский;
3. развитие навыков самостоятельной работы с текстом;
4. развитие навыков работы в команде;
5. развитие навыков работы с интернетом;
6. развитие умения грамотно оформлять свою речь на английском языке;

Воспитательные:

1. формирование коммуникативных умений, умений само регуляции и саморегулирования своей учебной деятельности;
2. формирование социальной компетентности (готовность к взаимодействию; освоению новых способов деятельности) и коммуникативной компетентности (готовность и способность осуществлять устную коммуникации);
3. расширение кругозора обучающихся.

ЗАДАНИЯ К ПРАКТИЧЕСКОМУ ЗАНЯТИЮ, КОТОРЫЕ НУЖНО ВЫПОЛНИТЬ СТУДЕНТАМ.

**Задание 1.Прогчитайте и переведите текст.**

A home appliance, domestic appliance or household appliance is a device which assists in [household](https://en.wikipedia.org/wiki/Household) functions such as [cooking](https://en.wikipedia.org/wiki/Cooking), [cleaning](https://en.wikipedia.org/wiki/Cleanliness) and [food preservation](https://en.wikipedia.org/wiki/Food_preservation).

Appliances are divided into three types: major or white goods; and [consumer electronics](https://en.wikipedia.org/wiki/Consumer_electronics), or brown goods.

This categorization is reflected in the [maintenance and repair](https://en.wikipedia.org/wiki/Maintenance,_repair_and_operations) of these types of products. Brown goods typically require high technical knowledge and skills (which get more complex with time, such as going from a [soldering iron](https://en.wikipedia.org/wiki/Soldering_iron) to a hot-air soldering station), while white goods may need more practical skills and force to manipulate the devices and heavy tools required to repair them.

Given a broad usage, the domestic application attached to home appliance is tied to the definition of [appliance](https://en.wikipedia.org/wiki/Appliance_(disambiguation)) as "an instrument or device designed for a particular use or function". More specifically, [Collins English Dictionary](https://en.wikipedia.org/wiki/Collins_English_Dictionary) defines "home appliance" as: "devices or machines, usually electrical, that are in your home and which you use to do jobs such as cleaning or cooking". The broad usage, afforded to the definition allows for nearly any device intended for domestic use to be a home appliance, including [consumer electronics](https://en.wikipedia.org/wiki/Consumer_electronics) as well as [stoves](https://en.wikipedia.org/wiki/Stove), [refrigerators](https://en.wikipedia.org/wiki/Refrigerator), [toasters](https://en.wikipedia.org/wiki/Toaster) and [air conditioners](https://en.wikipedia.org/wiki/Air_conditioner).

While many appliances have existed for centuries, the self-contained electric or gas powered appliances are a uniquely American innovation that emerged in the twentieth century. The development of these appliances is tied to the disappearance of full-time [domestic servants](https://en.wikipedia.org/wiki/Domestic_servant) and the desire to reduce the time-consuming activities in pursuit of more recreational time. In the early 1900s, electric and gas appliances included [washing machines](https://en.wikipedia.org/wiki/Washing_machine), [water heaters](https://en.wikipedia.org/wiki/Water_heating), [refrigerators](https://en.wikipedia.org/wiki/Refrigerator), [kettles](https://en.wikipedia.org/wiki/Kettle) and [sewing machines](https://en.wikipedia.org/wiki/Sewing_machine). The invention of Earl Richardson's small electric [clothes iron](https://en.wikipedia.org/wiki/Clothes_iron) in 1903 gave a small initial boost to the home appliance industry. In the [Post–World War II economic expansion](https://en.wikipedia.org/wiki/Post%E2%80%93World_War_II_economic_expansion), the domestic use of [dishwashers](https://en.wikipedia.org/wiki/Dishwasher), and [clothes dryers](https://en.wikipedia.org/wiki/Clothes_dryer) were part of a shift for convenience. Increasing [discretionary income](https://en.wikipedia.org/wiki/Discretionary_income) was reflected by a rise in miscellaneous home appliances.

In America during the 1980s, the industry shipped $1.5 billion worth of goods each year and employed over 14,000 workers, with revenues doubling between 1982 and 1990 to $3.3 billion.

The [United States Department of Energy](https://en.wikipedia.org/wiki/United_States_Department_of_Energy) reviews compliance with the [National Appliance Energy Conservation Act](https://en.wikipedia.org/wiki/National_Appliance_Energy_Conservation_Act) of 1987, which required manufacturers to reduce the energy consumption of the appliances by 25% every five years. In the 1990s, the appliance industry was very consolidated, with over 90% of the products being sold by just five companies. For example, in 1991, [dishwasher](https://en.wikipedia.org/wiki/Dishwasher) manufacturing market share was split between [General Electric](https://en.wikipedia.org/wiki/General_Electric) with 40% market share, [Whirlpool](https://en.wikipedia.org/wiki/Whirlpool_(company)) with 31% market share, [Electrolux](https://en.wikipedia.org/wiki/Electrolux) with 20% market share, [Maytag](https://en.wikipedia.org/wiki/Maytag) with 7% market share and [Thermador](https://en.wikipedia.org/wiki/Thermador" \o "Thermador) with just 2% of market share.

Major appliances, also known as white goods, comprise major household appliances and may include: [air conditioners](https://en.wikipedia.org/wiki/Air_conditioner), [dishwashers](https://en.wikipedia.org/wiki/Dishwasher), [clothes dryers](https://en.wikipedia.org/wiki/Clothes_dryer), [drying cabinets](https://en.wikipedia.org/wiki/Drying_cabinet), [freezers](https://en.wikipedia.org/wiki/Freezer), [refrigerators](https://en.wikipedia.org/wiki/Refrigerator), [kitchen stoves](https://en.wikipedia.org/wiki/Kitchen_stove), [water heaters](https://en.wikipedia.org/wiki/Water_heater), [washing machines](https://en.wikipedia.org/wiki/Washing_machine), [trash compactors](https://en.wikipedia.org/wiki/Trash_compactor), [microwave ovens](https://en.wikipedia.org/wiki/Microwave_oven), and [induction cookers](https://en.wikipedia.org/wiki/Induction_cookers). White goods were typically painted or [enameled](https://en.wikipedia.org/wiki/Vitreous_enamel) white, and many of them still are.

Small appliances are typically small household electrical machines, also very useful and easily carried and installed. Yet another category is used in the kitchen, including: [juicers](https://en.wikipedia.org/wiki/Juicer), [electric mixers](https://en.wikipedia.org/wiki/Electric_mixer), [meat grinders](https://en.wikipedia.org/wiki/Meat_grinder), [coffee grinders](https://en.wikipedia.org/wiki/Coffee_grinder), [deep fryers](https://en.wikipedia.org/wiki/Deep_frying), [herb grinders](https://en.wikipedia.org/wiki/Herb_grinder), [food processors](https://en.wikipedia.org/wiki/Food_processor), [electric kettles](https://en.wikipedia.org/wiki/Electric_kettle), [waffle irons](https://en.wikipedia.org/wiki/Waffle_iron), [coffee makers](https://en.wikipedia.org/wiki/Coffee_maker), [blenders](https://en.wikipedia.org/wiki/Blender) and [dough blenders](https://en.wikipedia.org/wiki/Dough_blender), [rice cookers](https://en.wikipedia.org/wiki/Rice_cooker), [toasters](https://en.wikipedia.org/wiki/Toaster) and [exhaust hoods](https://en.wikipedia.org/wiki/Exhaust_hood).

Entertainment and information appliances such as: [home electronics](https://en.wikipedia.org/wiki/Home_electronics), [radio receivers](https://en.wikipedia.org/wiki/Radio_receiver), [TV sets](https://en.wikipedia.org/wiki/TV_set), [CD](https://en.wikipedia.org/wiki/CD_player), [VCRs](https://en.wikipedia.org/wiki/VCR) and [DVD players](https://en.wikipedia.org/wiki/DVD_player), [digital cameras](https://en.wikipedia.org/wiki/Digital_camera), [camcorders](https://en.wikipedia.org/wiki/Camcorder), [still cameras](https://en.wikipedia.org/wiki/Still_camera), [clocks](https://en.wikipedia.org/wiki/Clock), [alarm clocks](https://en.wikipedia.org/wiki/Alarm_clock), [computers](https://en.wikipedia.org/wiki/Computer), [video game consoles](https://en.wikipedia.org/wiki/Video_game_consoles), [HiFi](https://en.wikipedia.org/wiki/HiFi" \o "HiFi) and [home cinema](https://en.wikipedia.org/wiki/Home_cinema), [telephones](https://en.wikipedia.org/wiki/Telephone) and [answering machines](https://en.wikipedia.org/wiki/Answering_machine) are classified as "brown goods". Some such appliances were traditionally finished with genuine or imitation wood, hence the name. This has become rare but the name has stuck, even for goods that are unlikely ever to have had a wooden case (e.g. camcorders).

There is a trend of networking home appliances together, and combining their controls and key functions. For instance, energy distribution could be managed more evenly so that when a [washing machine](https://en.wikipedia.org/wiki/Washing_machine) is on, an [oven](https://en.wikipedia.org/wiki/Oven) can go into a delayed start mode, or vice versa. Or, a [washing machine](https://en.wikipedia.org/wiki/Washing_machine) and [clothes dryer](https://en.wikipedia.org/wiki/Clothes_dryer) could share information about load characteristics (gentle/normal, light/full), and synchronize their finish times so the wet laundry does not have to wait before being put in the dryer.

Additionally, some manufacturers of home appliances are quickly beginning to place hardware that enables [Internet](https://en.wikipedia.org/wiki/Internet) connectivity in home appliances to allow for [remote control](https://en.wikipedia.org/wiki/Remote_control), automation, communication with other home appliances, and more functionality enabling connected cooking. Internet-connected home appliances were especially prevalent during recent [Consumer Electronic Show](https://en.wikipedia.org/wiki/Consumer_Electronic_Show) events.

Appliance recycling consists of dismantling waste home appliances and [scrapping](https://en.wikipedia.org/wiki/Scrap) their parts for reuse. The main types of appliances that are recycled are T.V.s, refrigerators, air conditioners, washing machines, and computers. It involves disassembly, removal of hazardous components and destruction of the equipment to recover materials, generally by shredding, sorting and grading.

**Задание 2.Ответьте на вопросы по тексту.**

1. What is the home appliance? *A home appliance, domestic appliance or household appliance is a device which assists in*[*household*](https://en.wikipedia.org/wiki/Household)*functions such as*[*cooking*](https://en.wikipedia.org/wiki/Cooking)*,*[*cleaning*](https://en.wikipedia.org/wiki/Cleanliness)*and*[*food preservation*](https://en.wikipedia.org/wiki/Food_preservation)*.*

2. Into what three groups are they divided? *Appliances are divided into three types: appliances; major or white goods; and*[*consumer electronics*](https://en.wikipedia.org/wiki/Consumer_electronics)*, or brown goods.*

3. Which group requires technical knowledge?

*Brown goods typically require high technical knowledge and skills (which get more complex with time, such as going from a*[*soldering iron*](https://en.wikipedia.org/wiki/Soldering_iron)*to a hot-air soldering station).*

4. Which group requires practical skills? *White goods may need more practical skills and force to manipulate the devices and heavy tools required to repair them.*

5. How does [Collins English Dictionary](https://en.wikipedia.org/wiki/Collins_English_Dictionary) define "home appliance"? [*Collins English Dictionary*](https://en.wikipedia.org/wiki/Collins_English_Dictionary)*defines "home appliance" as: "devices or machines, usually electrical, that are in your home and which you use to do jobs such as cleaning or cooking".*

6. What appliances are uniquely American innovations? *the self-contained electric or gas powered appliances are a uniquely American innovation that emerged in the twentieth century.*

7. When did they emerge? *In the twentieth century.*

8. What appliances were common in the 1900s? *In the early 1900s, electric and gas appliances included*[*washing machines*](https://en.wikipedia.org/wiki/Washing_machine)*,*[*water heaters*](https://en.wikipedia.org/wiki/Water_heating)*,*[*refrigerators*](https://en.wikipedia.org/wiki/Refrigerator)*,*[*kettles*](https://en.wikipedia.org/wiki/Kettle)*and*[*sewing machines*](https://en.wikipedia.org/wiki/Sewing_machine)*.*

9. When and by whom was the iron invented? *The invention of Earl Richardson's small electric*[*clothes iron*](https://en.wikipedia.org/wiki/Clothes_iron)*in 1903 gave a small initial boost to the home appliance industry.*

10. Why are white goods called so? *White goods were typically painted or*[*enameled*](https://en.wikipedia.org/wiki/Vitreous_enamel)*white, and many of them still are.*

11. Why are small appliances convenient? *Small appliances are typically small household electrical machines, also very useful and easily carried and installed.*

12. Why are brown goods called so? " *Some such appliances were traditionally finished with genuine or imitation wood, hence the name.*

13. What are Internet-connected home appliances? *Internet-connected home appliances were especially prevalent during recent*[*Consumer Electronic Show*](https://en.wikipedia.org/wiki/Consumer_Electronic_Show)*events.*

14. What is an appliance recycling consists of? *Appliance recycling consists of dismantling waste home appliances and*[*scrapping*](https://en.wikipedia.org/wiki/Scrap)*their parts for reuse.*

**Задание 3. Что означают эти цифры?**

14000,3.3, 25%, 90%,40%,31%, 20%,7%,2%

1900//1903//1980//1982//1990//1987//1991

**Ответы.**

14000- In America during the 1980s, the industry shipped $1.5 billion worth of goods each year and employed over 14,000 workers

3.3- with revenues doubling between 1982 and 1990 to $3.3 billion

25%- to reduce the energy consumption of the appliances by 25% every five years

90%- with over 90% of the products being sold by just five companies

40%- [dishwasher](https://en.wikipedia.org/wiki/Dishwasher) manufacturing market share was split between [General Electric](https://en.wikipedia.org/wiki/General_Electric) with 40% market share

31%-[Whirlpool](https://en.wikipedia.org/wiki/Whirlpool_(company)) with 31% market share

20%-[Electrolux](https://en.wikipedia.org/wiki/Electrolux) with 20% market share

7%- [Maytag](https://en.wikipedia.org/wiki/Maytag) with 7% market share

2%-[Thermador](https://en.wikipedia.org/wiki/Thermador" \o "Thermador) with just 2% of market share

1900- In the early 1900s, electric and gas appliances included [washing machines](https://en.wikipedia.org/wiki/Washing_machine), [water heaters](https://en.wikipedia.org/wiki/Water_heating), [refrigerators](https://en.wikipedia.org/wiki/Refrigerator), [kettles](https://en.wikipedia.org/wiki/Kettle) and [sewing machines](https://en.wikipedia.org/wiki/Sewing_machine)

1903- The invention of Earl Richardson's small electric [clothes iron](https://en.wikipedia.org/wiki/Clothes_iron) in 1903 gave a small initial boost to the home appliance industry

1980- 1982//1990 In America during the 1980s, the industry shipped $1.5 billion worth of goods each year and employed over 14,000 workers, with revenues doubling between 1982 and 1990 to $3.3 billion.//1987[National Appliance Energy Conservation Act](https://en.wikipedia.org/wiki/National_Appliance_Energy_Conservation_Act) of 1987, which required manufacturers to reduce the energy consumption of the appliances by 25% every five years

1991- in 1991, [dishwasher](https://en.wikipedia.org/wiki/Dishwasher) manufacturing market share was split between [General Electric](https://en.wikipedia.org/wiki/General_Electric) with 40% market share

**Задание 4. Выпишите из текста названия всех бытовых приборов и распределите их по группам (Класс делится на 3 подгруппы) .**

major or white goods// brown goods//small appliances

**Задание 5. Подберите в Интернете картинки к тексту.**

**Задание 6. Подготовьте рассказ об одном из бытовых электроприборов по следующему плану.**

1. Name the object
2. Describe the form, the color, the shape
3. Functions
4. Why I have chosen this subject
5. How often I use the subject
6. What I like and dislike about the subject

**Задание 7 . Игра «Угадай бытовой электроприбор по описанию».**