**Методическая разработка на тему**

**«Чтение на уроках английского языка как цель и средство обучения различным видам речевой деятельности».**

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**Введение.**

Чтение как процесс. Значение чтения в жизни современного человека.

Чтение – это один из наиболее важных способов получения информации. Оно занимает значительное место в жизни современного образованного человека.

Чтение – это рецептивный вид речевой деятельности, связанный с извлечением информации через зрительный канал. В основе этого вида речевой деятельности лежат умения, связанные с извлечением поступающей информации. Чтение представляет собой чрезвычайно сложный процесс, характеризующийся громадным объемом подсознательной работы мозга.

Чтение – это также одна из форм письменного общения, что в свою очередь обеспечивает передачу жизненного опыта человечества, накопленного в различных и разнообразных сферах и ситуациях жизни. Чтение способствует развитию познавательных функций психики, а так как в процессе овладения иностранным языком тренируются различные приемы запоминания, формируется филологическое мышление, расширяются знания об окружающей действительности, именно чтение является основой для развития этих умений.

Чтение - это цель и, одновременно средство обучения иностранному языку, а целью обучения чтению, в сою очередь, является овладение учащимися умением читать на иностранном языке, которая является одной из практических целей изучения иностранного языка, как дисциплины в целом.

Как известно, активность в усвоении информации у детей происходит на основе их собственных взглядов и интересов, что является основным средством мотивации учебной деятельности. По мере накопления лексических единиц многие дети нуждаются в зрительной опоре т.к. воспринимать только на слух речь крайне трудно. Особенно это касается тех детей, у которых зрительная память развита лучше слуховой памяти. Поэтому так актуально чтение.

**1.Чтение как цель и средство обучения.**

Обучение чтению должно представлять собой обучение речевой деятельности, так как оно не только создает правильную ориентацию обучающихся, но и способствует более быстрому формированию необходимых речевых умений на иностранном языке. Мы используем чтение преимущественно в этой функции: с помощью текстов мы знакомим с новым языковым материалом, используем тексты для подготовки пересказов, выражения мнений, ответов на вопросы и многих других заданий.

Универсальность работы с текстом заключается в том, что текст представляет собой опору для развития коммуникативной компетенции в совокупности таких ее составляющих, как речевая, языковая, социокультурная, компенсаторная и учебно-познавательная компетенции.

Чтение выступает как цель обучения, предусматривающая формирование и развитие всех видов чтения и основных УУД: личностных, познавательных, коммуникативных и регулятивных, и в свете требований действующей нормативной образовательной базы, ФГОС, соответствует формированию личностных УУД и достижению личностных результатов обучения.

Процесс формирования познавательных УУД заключается в том, что работа с текстом формирует читательскую культуру и информационную компетенцию, развивает исследовательские умения, умения обобщать, выделять главное, реферировать и структурировать информацию.

Успешная реализация коммуникативных УУД связана с выполнением интегрированных коммуникативных (направленных на развитие навыков говорения, письма, аудирования) заданий.

Процесс формирования регулятивных УУД связан с определением смысла чтения для себя, рационального планирования и оценки, а также с повышением интереса и мотивации, проявлением волевого усилия, осознанием качества.

Таким образом, чтение становится опорой для достижения личностных, метапредметных и предметных результатов обучения.

Стратегия развития навыков чтения и формирование всего спектра УУД предполагают сбалансированную отработку всех видов чтения и алгоритма выполнения дотекстовых, собственно текстовых и послетекстовых заданий.

Правильно организованное обучение чтению выполняет следующие функции:

1. Самостоятельность.
2. Развитие навыков письма, говорения и аудирования.
3. Воспитательные цели (нравственность, мировоззрение, ценности).
4. Познавательная функция.
5. Привитие любви к чтению.

**2.Виды чтения.**

В методике выделяют 4 основных вида или умений чтения. В зависимости от целевой установки различают ознакомительное, изучающее просмотровое и поисковое чтение.

1). Ознакомительное (это вид чтения, при котором объектом внимания читателя становится весь текст, и его задача – извлечение главной, основной информации)

2). Изучающее (это вид чтения, требующий полного, глубокого понимания текста, его осмысление и анализ)

3). Поисковое (это вид чтения, задачей которого является поиск определенной информации в тексте, причем осмысления текста и логики его построения не требуется)

4). Просмотровое (это беглое выборочное чтение, целью которого является получить общее представление о тексте или о ряде вопросов, которые он затрагивает)

Рассмотрим каждый вид чтения более подробно.

Ознакомительное чтение (readingforthemainidea) представляет собой познающее чтение, при котором предметом внимания читающего становится все речевое произведение (книга, статья, рассказ) без установки на получение определенной информации. Это чтение «для себя», без предварительной специальной установки на последующее внедрение либо воспроизведение полученной информации. При ознакомительном чтении основная коммуникативная задачка, которая стоит перед читающим, заключается в том, чтоб в итоге быстрого чтения всего текста извлечь содержащуюся в нем основную информацию, то есть выяснить, какие вопросы и каким образом решаются в тексте, что конкретно говорится в нем по данным вопросам. Оно просит умения различать главную и второстепенную информацию.

Степень полноты понимания - не менее 70 % содержащихся в тексте фактов, включая все основные. Понимание основной информации должно быть точным. Степень автоматизированности технических навыков у учащихся обычно определяется по этому виду чтения.

Темп ознакомительного чтения не должен быть ниже 180 слов в минуту. Для практики в этом виде чтения используются сравнительно длинные тексты, легкие в языковом отношении, содержащие не менее 25 – 30% избыточной, второстепенной информации.

Изучающее чтение(detailreading) предусматривает максимально полное и чёткое понимание всей содержащейся в тексте информации и критическое её осмысление. Это вдумчивое и неспешное чтение, предполагающее целенаправленный анализ содержания читаемого с опорой на языковые и логические связи текста. Его задачей является также формирование у обучаемого умения без помощи других преодолевать затруднения в понимании иностранного языка.

Объектом «изучения» при этом виде чтения является информация, содержащаяся в тексте, но никак не языковой материал. Конкретно изучающее чтение учит бережному отношению к тексту. Степень полноты понимания - 100% .

Темп изучающего чтения составляет 50 – 60 слов в минуту. Для этого вида чтения подбираются тексты, имеющие познавательную ценность, информативную значимость и представляющие наибольшую трудность для данного этапа обучения как в содержательном, так и в языковом отношении.

Просмотровое чтение **(**Skimming) предполагает получения общего представления о читаемом материале. Его целью является получение самого общего представления о теме и круге вопросов, рассматриваемых в тексте. Это беглое, выборочное чтение текста по блокам для более подробного ознакомления с его «фокусирующими» деталями и частями. Оно также может завершаться оформлением результатов прочитанного в виде сообщения либо реферата.

Для обучения просмотровому чтению необходимо подбирать ряд тематически связанных текстовых материалов и создавать ситуации просмотра.

Скорость просмотрового чтения не должна быть ниже 500 слов в минуту, а учебные задания должны быть направлены на формирование навыков и умений ориентироваться в логико-смысловой структуре текста, умений извлекать и использовать материал текста источника в соответствии с конкретным коммуникативным заданием.

Этот вид чтения требует наличия у читающего довольно значительного объема языкового материала.

Поисковое чтение (readingforspecificinformation/scanning) нацелено на чтение газет и литературы по специальности. Его цель - быстрое нахождение в тексте либо в нескольких текстах вполне определенных данных (фактов, свойств, цифровых характеристик, указаний). Оно ориентировано на нахождение в тексте конкретной информации.

При поисковом чтении извлечение смысловой информации не просит дискурсивных действий и происходит автоматизировано. Такое чтение, как и просмотровое, предполагает наличие умения ориентироваться в логико-смысловой структуре текста, выбрать из него нужную информацию по определенной проблеме, выбрать и объединить информацию нескольких текстов по отдельным вопросам.

В учебных условиях поисковое чтение выступает скорее как упражнение, так как поиск той или иной информации, как правило, осуществляется по указанию преподавателя. Поэтому оно обычно является сопутствующим компонентом при развитии других видов чтения.

**3.Обучение ознакомительному чтению.**

Упражнения для обучения ознакомительному чте­нию целесообразно строить на элементах текста (аб­зацах) и на целых текстах. Отработка того или иного умения на элементах текста позволяет сократить время работы и выполнить большее количество об­учающих упражнений.

В самом общем плане алгоритм обучения ознако­мительному чтению может быть представлен сле­дующим образом:

1. Прочтите заголовок текста и постарайтесь определить его основную тему.

2. Читайте абзац за абзацем, отмечая в каждом предложения, несущие главную информацию, и пред­ложения, в которых содержится дополняющая, вто­ростепенная информация.

3. Определите степень важности абзацев, отметьте абзацы, которые содержат более важную информа­цию, и абзацы, которые содержат второстепенную по значению информацию.

4. Обобщите информацию, выраженную в абза­цах, в смысловое (единое) целое.

При обучении ознакомительному чтению в качестве предтекстовых заданий учитель может предложить обучающимся следующие виды упражнений:

1) Упражнения на понимание лексико-тематической основы текста: прочитать опорные слова и словосочетания текста, назвать его темы; прочитать текст и выписать ключевые слова и словосочетания, составляющие тематическую основу текста; ознакомиться с новыми словами и словосочетаниями и, не читая текст, сказать, о чем может идти речь; по схеме, состоящей из ключевых слов, догадаться о содержании текста, попытаться дать тексту название; выделить в тексте слова, которые наиболее четко и лаконично выражают главную мысль автора.

2) Упражнения на понимание предложений, содержащих незнакомые слова: прочитать предложения и попытаться понять их смысл, не обращая внимания на определения (обстоятельства времени, образа действия, места), выраженные незнакомыми словами; прочитать абзац и попытаться понять его, не обращая внимания на незнакомые слова; прочитать текст и попытаться понять его без словаря; сократить предложения или абзацы, оставляя лишь слова, несущие основную смысловую нагрузку.

3) Упражнения на прогнозирование содержания текста: исходя из названия, рисунков, графиков и концовки, предположить, о чем может идти речь в данном тексте, затем прочитать текст и найти подтверждение или опровержение сделанному предположению; прочитать текст до указанного места и подумать, как могут завершиться события, затем прочитать текст до конца, чтобы узнать насколько верны были догадки; прочитать отмеченные учителем абзацы текста и на их основе предположить, какие события или явления были описаны в тексте, затем прочитать текст полностью, чтобы определить истинность предположений; прочитать заключительные абзацы текста, основываясь на их содержании, рассказать, о чем идет речь в тексте, затем прочитать текст полностью и проверить себя.

Задания для текстового этапа могут быть представлены такими упражнениями:

1)Упражнения на выделение смысловых вех в тексте и понимание единичных фактов: прочитать первый абзац текста и найти в нем предложение, которое отражает главную информацию; в заданном абзаце найти предложение, несущее основную информацию и информацию, детализирующую главную; найти в указанном абзаце предложение, которое содержит аргументацию главной мысли предыдущего абзаца; указать, какие из приведенных утверждений соответствуют содержанию текста; назвать какие проблемы затронуты в тексте.

2) Упражнения на установление смысловой связи между единичными фактами текста: расположить данные предложения из текста в логической последовательности; прочитать текст и определить, на сколько логических частей он может быть разделен, чему посвящена каждая отдельная часть (введение, постановка про­блемы, пути ее решения, выводы и т. д.); прочитать текст и определить, какие из данных утверждений вытекают из содержания текста; составить список вопросов к тексту; выделить цифры, даты, цитаты в тексте и предположить в связи с чем автор мог их привести, затем прочитать текст и проверить сделанные ранее предположения.

3)Упражнения на объединение отдельных фактов текста в смысловое целое: перечислить содержащиеся в тексте факты, которые могут служить доказательством каждого из приведенных утверждений; прочитать приведенные из текста словосочетания и определить, отражают ли они логическую последовательность событий текста. Если нет, то расположить их в правильном порядке. Подобрать дополнительные словосочетания, которые понадобятся для связного пересказа текста. Прочитать вслух предложения из текста, которые объясняют его название и тему, сформулировать идею и проблему текста; прочитать текст и отметить факты, на основании которых автор делает главные выводы.

На послетекстовом этапе работы могут быть использованы следующие виды упражнений:

1)Упражнения на контроль понимания основного содержания прочитанного текста: прочитать текст и выразить сове согласие или несогласие с приведенными утверждениями из текста; составить вопросы к тексту; распределить данные вопросы в последовательности, которая соответствует содержанию текста и кратко на них ответить; составить план прочитанного текста; расположить смысловые части текста в логической последовательности.

2)Упражнения на определение коммуникативного намерения автора и основной функции текста: определить цель, которую ставил перед собой автор текста; сказать, совпадает ли точка зрения автора на затрагиваемую в тексте проблему с точкой зрения обучающихся; определить основное коммуникативное наме­рение автора текста (сообщить новую информацию, оценить (прокомментировать) событие или факт, убедить в чём-л. читателя, оказать на него воздей­ствие); определить и назвать основную функцию прочитанного текста (информативная, оценочная, воздействующая или функция убеждения).

3)Упражнения на развитие умения выражать оценочные суждения о прочитанном: обучающиеся могут выразить свое отношение к прочитанному, согласие или несогласие с авторской оценкой событий, явлений и фактов; высказаться, что было для них особенно интересно и почему, что нового они узнали из текста, а что им было уже известно.

**4.Обучение изучающему чтению.**

Задачи, которые читающий решает в процессе изучающего чтения, условно можно разделить на три основные группы, соответствующие характеру переработки информации (степени полноты, точности и глубины):

1) восприятие языковых средств и их точное понимание в тексте;

2) извлечение полной фактической информации, содержащейся в тексте;

3) осмысление извлеченной информации. Решение данных задач осуществляется на предтекстовом, текстовом и послетекстовом этапах рабо­ты с учебным текстом.

На первом (предтекстовом) этапе могут быть использованы следующие виды упражнений:

1)Упражнения на соотнесение значения слова с темой, ситуацией или контекстом. В таких упражнениях можно предложить обучающимся заполнить пропуски в предложении, однимизуказанных слов; найти и заменить слова в предложении, которые не подходят по смыслу; выполнить перевод предложений на родной язык; найти в каждой группе слов одно слово, не принадлежащее этой группе по значению.

2)Упражнения на расширение лексического запаса: выбрать из текста однокоренные слова и распределить их по частям речи; указать модели, по которым образованы производные слова (например, importance, cloudy, writer, harmful) и определить значение этих слов.

3)Упражнения на опознавание и дифференциацию грамматических явлений: выбрать из приведенных предложенийте, которые содержат страдательный залог (придаточ­ные предложения времени, сложное дополнение и т. д.) и объяснить, по каким признакам была установлена грамматическая форма; найти подлежащее, относящееся к определенному сказуемому или определения, относящиеся к указанному существительному.

4)Упражнения на выделение в предложениях ключевых слов: прочитать предложение и выразить ту же мысль другими словами; указать, каким членом предложения является слово (сказуемым, дополнением, обстоятельством); найти ключевое слово в предложении или предложение в абзаце; найти в предложениях слова, которые могут быть опущены без ущерба для смысла и прочитать предложения без них.

5)Упражнения на прогнозирование содержания читаемого. В качестве данных упражнений учитель может предложить обучающимся прочитать заглавие и сказать, о чем или о ком пойдет речь в тексте; прочитать первые предложения абзацев и попытаться определить основные вопросы, которые будут рассматриваться в тексте; прочитать последний абзац текста и попытаться догадаться, какое содержание могло предшествовать данному выводу; расположить данные в произвольном порядке абзацы так, чтобы получился логически связный текст.

На текстовом этапе можно выделить такие виды упражнений:

1) Упражнения на деление текстового материала на смысловые части: прочитать тест, разделить его на смысловые части, подобрать к каждой название, найти по предложению, которое передавало бы основную мысль части; назвать основную тему, идею и вопросы, которые освещает текст.

2)Упражнения на выделение смысловых опор в тексте: прочитать повторно предлагаемые абзацы текста и найти в них ключевые предложения или сформировать их основную мысль; найти глаголы, передающие динамику повествования; выбрать прилагательные или наречия, которые служат для описания того ли иного места, действия, персонажа. Кроме того, учитель может предложить детям попытаться составить денотатную карту текста, т.е. представить содержание текста в виде схемы отношений между объектами, о которых в нем упоминается.

На послетекстовом этапе можно выполнить такие упражнения, как:

1) Упражнения на проверку понимания фактического содержания текста: опираясь на содержание прочитанного текста, закончить предложения, используя предлагаемые варианты; ответить на вопросы, используя материал текста; найти и прочитать вслух те предложения, которые поясняют название текста; придумать альтернативное название для данного текста; ответить на проблемные вопросы по прочитанному тексту; пересказать текст, пользуясь лексикой из текста или написать к нему аннотацию.

2) В качестве упражнений для обучения интерпретации текста учитель может предложить обучающимся: объяснить, как они понимают то или иное утверждение в тексте, разделяют ли они такую точку зрения; рассказать, опираясь на описание и характеристику персонажа в тексте, что вызывает симпатию или антипатию и почему; выделить предложения или абзацы, которые характеризуют время действия, эпоху, либо рассказывают о культуре другой страны, найти и перечислить языковые и художественные средства, которые использует автор, определить с какой целью они использованы.

3) Упражнения на определение познавательной ценности прочитанного: прокомментировать ту часть текста, которая показалась обучающемуся наиболее интересной, выделить в тексте то новое, что он узнал из него, подумать, как эта информация может быть использована в дальнейшем обучении.

Пример из учающего чтения

**Alfred Nobel and his legacy**

When Alfred Nobel was 34 years old, he invented dynamite and 22 years later, smokeless gunpowder. These are hardly things one would associatewith a name that has become synonymouswith peace. However, peace is the subject of just one of the six prizes that are awarded each year in the name of the Swedish chemist. The other prizes are for physics, chemistry, medicine, literature and economics. The Nobel Peace Prize is awarded by a Norwegian committee, while the other five prizes are awarded by Swedish committees. The reason behind this has never been clear. One argument suggests that the Norwegians had shown a special interest in mediation, arbitration and the peaceful solution of international disputes, and was therefore the natural choice. The Nobel Peace Prize has existed for 104 years, and within that time about 70 of the individual winners have been men and about 17 of the individual winners have been women. The first woman to win the prize was Nobel’s friend Bertha von Sutter exactly 100 years ago, in 1905, and the most recent was WangariMaathai in 2004 for her contribution to sustainable development, democracy and peace. The other Nobel prizes can only be awarded to individuals (up to a maximumof three), but the Nobel Peace Prize can be given to institutions and organizations as well as individuals. This year’s prize was awarded jointly to the International Atomic Energy Agency and its Director General, Dr. Mohamed ElBaradei, for their efforts to prevent nuclear energy from being used for military purposes and to ensure that nuclear energy for peaceful purposes is used in the safest possible way. The ceremonywill take place, as usual, on December 10th at the City Hall, Oslo, Norway.

Pre – reading activities.

1)Read the text and find out the words which mean…

a) happening once a year (annual)  
b) a set of reasons that you use for persuading people (argument)  
c) a substance that is used for causing explosions (dynamite)

2) Try to understand the underlined words. Check in the dictionary.

3)Explain the formation of the words: smokeless, peaceful, gunpowder, etc.

4)Read the title and say what will be the text about.

Reading activities

1)Read the text and divide it into parts. Give each a title.

2)Find the key words in the sentences.

Post – reading activities

1)Put the sentences into order.

The Nobel Peace Prize has existed for 104 years.

The ceremony will take place on December 10th at the City Hall, Oslo, Norway.

When Alfred Nobel was 34 years old, he invented dynamite

2)Answer the questions

When did Alfred Nobel invent dynamite?

What are the subjects of prizes?

Who was the first woman to win the prize? etc.

Кроме упражнений, приведенных выше, на различных этапах можно использовать следующие задания:

Предтекстовый этап

1)Выполните частичный перевод предложений на родной язык.

2)Найдите существительное (прилагательное, глагол) в каждой группе слов.

3)Назовите слово, с которым ассоциируются все слова данного тематического ряда.

4)Найдите в тексте и выпишите существительные, образованные от глагола (прилагательного).

5)Выберите предложения, содержащие пассивный залог (сложное дополнение и т.д.), объясните по каким признакам вы установили грамматическую форму.

6)Назовите исходную форму данных слов.

Текстовый этап

1)прочтите текст и перечислите вопросы, освещаемые в нем;

2)прочтите текст и расположите пункты плана согласно логике повествования;

3)прочтите вслух все глаголы, передающие динамику повествования;

4)выберите из данного абзаца прилагательные и наречия, которые служат для описания…;

5)прочтите текст и передайте его основную идею несколькими предложениями.

Послетекстовый этап

1. используя материал текста, ответьте на вопросы;
2. расположите предложения в той последовательности, в которой они даны в тексте;
3. используя факты из текста, расскажите о …;
4. перескажите текст, используя план и выписанные словосочетания;
5. охарактеризуйте персонажей (время действия) своими словами;
6. выразите свое отношение к прочитанному;
7. прочтите про себя текст и выделите то новое, что вы узнали из него;
8. составьте аннотацию к тексту.

**5.Обучение просмотровому чтению.**

В зависимости от цели просмотрового чтения и степени полноты извлечения информации выделяют четыре подвида просмотрового чтения:

1. Конспективное*–*для выделения основных мыслей. Оно заключается в восприятии только наиболее значимых смысловых единиц текста, со­ставляющих логико-фактологическую цепочку.

2. Реферативное – для выделения основных мыс­лей. При этом читающего интересует только самое основное в содержании материала, все подроб­ности опускаются как несущественные для понима­ния главного.

3. Обзорное – для определения существа сооб­щаемого. Оно направлено на выделение главной мысли текста, причем задачи сводятся в основном к ее обнаружению на основе структурно-смысловой организации текста. Понимание главной мысли, выраженной имплицитно, в данном случае практи­чески невозможно. Интерпретация прочитанного ограничивается вынесением самой общей оценки прочитанному и определением соответствия текста инте­ресам читающего.

4. Ориентировочное – для установления наличия в тексте информации, представляющей для читаю­щего интерес или относящейся к определенной про­блеме. Основная задача читающего – установить, относится ли данный материал к интересующейеготеме.

Во время просмотрового чтения читающий, как правило, придерживается следующего алгоритма:

1. Внимательно читает заголовок текста, старается вникнуть в его смысл, определить главную мысль текста.

2. Прочитать первое предложение текста. Сопоставить его содержание с заголовком.

3. Прочитать первый абзац. Сопоставить его содержание со своим представлением о главной мысли текста.

4. Просмотреть все остальные абзацы, сопоставляя их содержание с представлением о главной мысли текста и обращая особое внимание на содержание первых предложений абзацев.

5. Сформулировать ответ на вопрос: «О чем повествуется в тексте?»

На предтекстовом этапе просмотрового чтения учитель может предложить обучающимся следующие упражнения:

1)Упражнения на работу с заглавием текста: прочитать заглавие и предположить о чем или о ком будет идти речь в тексте;

2)просмотреть текст и обратить внимание на то, как часто в тесте встречаются слова из заглавия.

3)Упражнения на овладение структурно-композиционными особенностями текстов различных функциональных стилей: просмотреть текст и определить его функционально-смысловой тип (описание, рассуждение, повествование); прочитать начальные предложения первого и последнего абзацев и сформулировать вопрос, который освещается в тексте; выделить в тексте вводную и основную части.

Для текстового этапа подойдут такие упражнения на определение темы текста например:

* 1. не читая текст, указать структурный компонент текста, в котором выражена тема, и прочитать его;
  2. определить выражена ли тема в заголовке текста;
  3. установить какая проблема обсуждается в тексте.

На послетекстовом этапе учащиеся могут выполнить следующие упражнения на контроль понимания прочитанного (просмотренного) текста:

* 1. определить какие вопросы рассматриваются в тексте;
  2. составить несколько вопросов к тексту;
  3. ответить на вопросы по тексту;
  4. высказать мнение о прочитанном,
  5. сообщить известные дополнительные сведения, привести примеры, факты, подобные описываемым.

**6.Обучение поисковому чтению.**

Что касается поискового чтения, то на предтекстовом этапе можно предложить обучающимся следующие задания на узнавание сигналов-опор, облегчающих поиск:

* 1. опираясь в основном на термины, отражаю­щие искомую информацию, найти эту информацию в тексте;
  2. найти в первых абзацах каждого раздела (главы, параграфа) формулировку рас­сматриваемой проблемы;
  3. опираясь на соответствующие термины и средства межфразовой связи, найти авторские выводы по интересующему вопросу.

На следующем (текстовом) этапе знакомства с текстом можно использовать такие упражнения:

1)Упражнения на общее восприятие текста: прочитать первое предложение или абзац и определить вопросы и проблемы, которые будут рассматриваться в тексте; прочитать последнее предложение или абзац и предположить, какое содержание могло предшество­вать данному выводу; просмотреть текст и найти фрагмент, который представляет для читающего особый интерес, объяснить почему.

2) Упражнения на определение частей текста, которые представляют интерес с точки зрения читающего: просмотреть предложенные тексты и выбрать из них факты, которые относятся к заданной теме; указать абзацы, которые содержат необходимые данные, определения, термины, ответы на вопросы.

Для послетекстового этапа подойдут такие задания, как упражнения, контролирующие умение находить в тексте конкретную информацию.

1)зачитать вслух из текста факты, которые относятся к рассматриваемой теме, проблеме и т.д.;

2)выписать из текста факты, которые могли бы послужить иллюстрацией к определенному тезису.

При обнаружении искомой информации цель по­искового чтения достигнута; чтение следует прекра­тить либо перейти к другим его видам (ознакоми­тельному, изучающему).

Таким образом, мы видим, что овладение технологией чтения осуществляется посредством трех этапов: предтекстового, текстового и послетекствового. Предтекстовые задания направлены на устранение лексических и лингвострановедческих трудностей. Текстовые задания служат для решения познавательно-коммуникативных задач в процессе чтения. А послетекстовые задания предназначены для проверки понимания прочитанного.

**Заключение.**

Английский язык, как учебная дисциплина, находится наряду с такими предметами, которые отвечают актуальности времени и запросам общества. Для того, чтобы успешно освоить иностранный язык, необходимо овладение чтением. Чтение является одним из важнейших видов коммуникативно-познавательной деятельности, которая направлена на извлечение информации из письменного текста. Поскольку чтение осуществляется на письменно фиксированном тексте, это дает возможность вернуться к нему при непонимании и позволяет больше внимания уделить раскрытию содержания

Чтение на иностранном языке как вид речевой деятельности и как опосредованная форма общения является самым необходимым для большинства людей. Процесс чтения, предполагающий сложные мыслительные операции (анализ, синтез, умозаключение и др.), и результат – извлечение информации – имеют огромное значение в коммуникативно-общественной деятельности людей.

Опыт показывает, что представленные формы работы с текстом, используемые с учетом возрастных особенностей и уровня языковой подготовки обучающихся, способствуют овладению приемами чтения, повышают уровень общего речевого развития. Но самое главное, на мой взгляд, что определяет ценность такой стратегии работы с текстом, - это изменение отношения к сложному предмету как доступному и увлекательному.

**Из опыта работы**

**Работа с текстом «Виды теории относительности».**

**Special relativity**

It applies to all physical phenomena except gravity.

The main consequences of special relativity.

1. [Relativity of simultaneity](https://en.wikipedia.org/wiki/Relativity_of_simultaneity): Two events, simultaneous for one observer, may not be simultaneous for another observer if the observers are in relative motion.
2. [Time dilation](https://en.wikipedia.org/wiki/Time_dilation): Moving [clocks](https://en.wikipedia.org/wiki/Clock) are measured to tick more slowly than an observer's "stationary" clock.
3. [Relativistic mass](https://en.wikipedia.org/wiki/Mass_in_special_relativity)
4. [Length contraction](https://en.wikipedia.org/wiki/Length_contraction): Objects are measured to be shortened in the direction that they are moving with respect to the observer.
5. [Mass–energy equivalence](https://en.wikipedia.org/wiki/Mass%E2%80%93energy_equivalence): *E* = *mc*2, energy and mass are equivalent and transmutable.
6. [Maximum speed is finite](https://en.wikipedia.org/wiki/Speed_of_light#Upper_limit_on_speeds): No physical object, message or field line can travel faster than the speed of light in a vacuum.
7. The effect of Gravity can only travel through space at the speed of light, not faster or instantaneously.

**General relativity**

Technically, general relativity is a theory of [gravitation](https://en.wikipedia.org/wiki/Gravitation) whose defining feature is its use of the [Einstein field equations](https://en.wikipedia.org/wiki/Einstein_field_equations). УравненияполяЭйнштейна.Thesolutions of the field equations are [metric tensors](https://en.wikipedia.org/wiki/Metric_tensor_(general_relativity))метрическийтензор –метрикаwhich define the [topology](https://en.wikipedia.org/wiki/Topology) of the spacetime and how objects moveinertially.

Some of the consequences of general relativity are:

1. Clocks run slower in deeper gravitational wells. This is called [gravitational time dilation](https://en.wikipedia.org/wiki/Gravitational_time_dilation).
2. Orbits [precess](https://en.wikipedia.org/wiki/Precession) прецессировать in a way unexpected in Newton's theory of gravity. (This has been observed in the orbit of [Mercury](https://en.wikipedia.org/wiki/Mercury_(planet)) and in [binary двойной pulsars](https://en.wikipedia.org/wiki/Binary_pulsar)).
3. Rays of [light](https://en.wikipedia.org/wiki/Light) [bend изгибать in the presence of a gravitational field](https://en.wikipedia.org/wiki/General_relativity#Light_deflection_and_gravitational_time_delay).
4. Rotating masses "drag along" the [spacetime](https://en.wikipedia.org/wiki/Spacetime) around them; a phenomenon termed "[frame-dragging](https://en.wikipedia.org/wiki/Frame-dragging)".
5. [The universe isexpanding](https://en.wikipedia.org/wiki/Metric_expansion_of_space), and the far parts of it are moving away from us [faster than the speed of light](https://en.wikipedia.org/wiki/Faster-than-light#Universal_expansion).

**A.Прочитать текст про себя и выписать выражения.**

Притяжение, последствия, одновременность, одновременный, относительное движение, расширение времени, измерять, относительная масса, сокращение длины, Закон эквивалентности массы и энергии, максимальная скорость ограничена, мгновенно, определяющая черта, уравнение, решение, двигаться, лучи света, вращающиеся массы, вселенная, скорость света

**B.Перевести вопросы на английский и русский язык и ответить на них.**

1. Где применима специальная теория относительности?
2. Объясните принцип относительности одновременности?
3. Что такое расширение во времени?
4. What law is explained by the formula *E* = *mc*2?
5. Is maximum speed finite or infinite?
6. Что такое общая теория относительности?
7. Какие явления объясняются уравнениями полей Эйнштейна?
8. Where do clocks run slower? With what law is it connected?
9. How do rays of light behave in the presence of a gravitational field?
10. Назовите пятый принцип общей теории относительности?
11. Where is the special theory of relativity applied?
12. Explain the principle relativity of simultaneity?
13. What is time dilation?
14. Какой закон объясняется формулой *E* = *mc*2?
15. Является ли максимальная скорость ограниченной или неограниченной?
16. What is general theory of relativity?
17. What phenomena are explained by the Einstein field equations?
18. Где часы идут медленнее?
19. Как ведут себя лучи света в присутствии гравитационного поля?
20. Name the 5th law of general theory of relativity?
21. It applies to all physical phenomena except gravity.
22. [Relativity of simultaneity](https://en.wikipedia.org/wiki/Relativity_of_simultaneity): Two events, simultaneous for one observer, may not be simultaneous for another observer if the observers are in relative motion.
23. [Time dilation](https://en.wikipedia.org/wiki/Time_dilation): Moving [clocks](https://en.wikipedia.org/wiki/Clock) are measured to tick more slowly than an observer's "stationary" clock.
24. [Mass–energy equivalence](https://en.wikipedia.org/wiki/Mass%E2%80%93energy_equivalence): *E* = *mc*2, energy and mass are equivalent and transmutable.
25. [Maximum speed is finite](https://en.wikipedia.org/wiki/Speed_of_light#Upper_limit_on_speeds): No physical object, message or field line can travel faster than the speed of light in a vacuum.
26. Technically, general relativity is a theory of [gravitation](https://en.wikipedia.org/wiki/Gravitation) whose defining feature is its use of the [Einstein field equations](https://en.wikipedia.org/wiki/Einstein_field_equations).
27. The solutions of the field equations are [metric tensors](https://en.wikipedia.org/wiki/Metric_tensor_(general_relativity)) which define the [topology](https://en.wikipedia.org/wiki/Topology) of the spacetime and how objects move inertially.
28. Clocks run slower in deeper gravitational wells. This is called [gravitational time dilation](https://en.wikipedia.org/wiki/Gravitational_time_dilation).
29. Rays of [light](https://en.wikipedia.org/wiki/Light) [bend in the presence of a gravitational field](https://en.wikipedia.org/wiki/General_relativity#Light_deflection_and_gravitational_time_delay).
30. [The universe is expanding](https://en.wikipedia.org/wiki/Metric_expansion_of_space), and the far parts of it are moving away from us [faster than the speed of light](https://en.wikipedia.org/wiki/Faster-than-light#Universal_expansion).

**Работа с текстом « Петр Великий»**

**Задание.**

Read the text and find the following information:

Personality of Peter

Peter’s appearance

Relatives of Peter

His politic goals

His reforms

His military campaigns

Personal life

Interesting facts

What new information have you learned about Peter the first?

Peter the Great was a Russian Tsar in the late 17th century who later on became the first Emperor of Russia. Peter I was extremely tall with a height of 6 ft 8 in (203 cm). He thus stood head and shoulders above his contemporaries. He was handsome and of unusual physical strength. He believed in hard work and performed his duties with the same diligence that he demanded of others. He began his own army service at the lowest rank and required others to do likewise to gain mastery of their profession. Peter is said to have had an eye for talent which aided him to pick the right people for the work required. Peter was known to have a terrible temper and could be cruel when opposed. At such times, people usually asked his beloved wife Catherine to intercede with him for them.

His grandfather Michael I was founder of the Romanov dynasty in Russia

Michael I of Russia, or Mikhail Fyodorovich Romanov, was the first Russian Tsar from the House of Romanov, which ruled Russia for more than 300 years from February 21, 1613 to March 15, 1917.

He traveled as Peter Mikhailov across Europe and worked as a carpenter

Peter knew that it would be difficult for Russia to face the mighty Ottoman Empire alone. In 1697, he traveled incognito to Europe under the name of Peter Mikhailov, with a large Russian delegation, known as the Grand Embassy. The principal aim of it was to form a strong alliance with European nations against the Turks to aid Russia’s quest for northern coastline of the Black Sea. The 18-month journey was not a success in that regard as European powers were occupied with the succession of the childless Spanish King Charles II. However during his time in Europe, Peter the Great studied shipbuilding and even worked as a ship’s carpenter in the yard of the Dutch East India Company. He later used his shipbuilding knowledge to strengthen the Russian navy. He also gained valuable insights into the international situation; and economic and cultural life of Europe.

**Childhood & Early Life**

• He was born as PyotrAlekseyevich on June 9, 1672 in Moscow, Russia, as the son of Tsar Alexis and his second wife, Natalya KirillovnaNaryshkina. He was his father’s 14th child but his mother’s first son. Most of his elder half-siblings were weak and sickly while Peter himself was healthy and full of energy and vigor.

• The Tsar Alexis died when Peter was just four years old. His elder half-brother, Feodar III succeeded to the throne. Feodar was a sickly person and he died in 1682.

• Another ill half-brother, Ivan V, inherited the throne. But since Ivan was also sickly and of infirm mind, the Russian nobles chose the healthy ten-year-old Peter to become Tsar with his mother as regent. From 1682, the two brothers Ivan and Peter ruled jointly.

**Ascension & Reign**

• Ivan died in 1696 and Peter was officially declared Sovereign of all Russia. When Peter came to power, Russia was severely underdeveloped as compared to the other European nations which were prosperous and culturally rich. Russia lagged behind in modernization and this was something Peter vowed to change.

• He implemented a series of progressive reforms during his reign in an attempt to bring Russia at par with the other European nations. He reorganized his army according to Western standards, and invited experts in the fields of shipbuilding, engineering, architecture and business from all over Europe to come to Russia and help modernize the country. He also encouraged the Russians to move out to different parts of Europe for furthering their education.

• Industrial development was boosted in an unprecedented way during the reign of Peter. He encouraged the Russians to adopt the latest European technologies and this led to a surge in the number of factories being built. Trade and commerce flourished during his reign.

• Peter realized that it was important to make Russia a maritime power in order to make trading with other nations easier. He sought to create more maritime outlets and after several wars with Turkey in the south, he secured access to the Black Sea. He officially founded the first Russian Navy base, Taganrog, in September 1698.

• He also embarked on extensive military campaigns in order to expand his territories. He started the Northern War with Sweden in 1700. The city of St. Petersburg was founded (1703) on the delta of the Neva River during the course of the war and in 1712 Peter the Great moved the Russian capital from Moscow to St. Petersburg which prospered as a hub of trade and culture.

• The war went on for 21 long years and ended with the Treaty of Nystad in 1721. By the time the war ended, Russia had acquired Ingria, Estonia, Livonia, and a substantial portion of Karelia. After the end of the Northern War in 1721, Russia was declared an Empire and Peter the Great proclaimed himself its Emperor.

• His later reign too was marked by several radical reforms. In 1722, Peter created a new order of precedence known as the Table of Ranks. The Russian Orthodox Church was also reformed during his reign.

**Major Works**

• Peter the Great is famous as the ruler under whose administration Russia became a great European nation. He implemented several reforms to modernize Russia. Among other things, he focused on the development of science and technology, encouraged trade and commerce, secularized schools and

modernized the Russian alphabet, introduced the Julian calendar, and established the first Russian newspaper.

**Personal Life & Legacy**

• When Peter was a young man, his mother arranged his marriage with EudoxiaLopukhina, the daughter of a minor noble. The marriage which took place in 1689 was unhappy from the very beginning. Peter divorced his wife in 1698 and forced her to join a convent. This union produced three children.

• A few years after his divorce, he took a mistress by the name Martha Skavronskaya who converted to the Russian Orthodox Church and took the name Catherine. He married her in Saint Petersburg on 9 February 1712. This marriage resulted in the birth of 11 children though only a few survived to adulthood.

• Peter the Great began having problems with his urinary tract and bladder мочевойпузырь in 1723. He had a surgery in 1724 though his health started failing again soon after. He died on February 8, 1725, without nominating an heir.

**Работастекстом “Leisure Activities of British and Russian teenagers”**

1 Знакомство с новыми словами.

leisure — досуг, свободное время

variety — разнообразие

pursuit — занятие

tokeepfit — быть в хорошей форме

toincrease — увеличивать

tojog — бегать трусцой

recreationcentre — оздорови­ тельный центр

indoorpool — крытый бассейн

wave-makingmachine — приспо­собление для создания искусственных волн

waterslides — водные горки

tropicalvegetation — тропичес­кая растительность

to be as fit as a fiddle — бытьздоровым

problemteenager — сложный подросток

high-riskactivity — деятель­ность, связанная с высокой степенью опасности

spectator — болельщик

couch potato — телеман

to redesign — реконструиро­вать

generation — поколение

to switch on — включать

torace — состязаться

tobreed — разводить (животных)

hamster — хомяк

shy — застенчивый

in the heart of hearts — вглубинедуши

silly — глупый

to deliver — разносить

hitchhiking — путешествиеавтостопом

addict — имеющий пристрастие к чему­л.

message — сообщение

onlineconversation — разговор по компьютеру

self-discipline — самодисцип­лина

elbow — локоть

fist — кулак

weapon — оружие

lightning — молния

to bring up — воспитывать

personality — личность

nobility — благородство

will — сила воли

2.Прочитать текст про себя и назвать виды досуга молодежи..

**Leisure Activities of British and Russian Teenagers.**

Britain has in recent years been described as a “leisure society”. This is because there is a great variety of leisure pursuits. Young people generally go out on Friday or Saturday nights to a disco, to a concert or to a pub. In recent years going out for a meal or bringing a takeaway meal have become popular too.

During the last years there is a great increase in keeping fit and staying healthy. A lot of teens started running, jogging and going to different fitness clubs in their spare time. Aerobics classes and fitness clubs opened in every town, and the number of recreation centres greatly increased. Indoor pools, with their wave­making machines, water slides and tropical vegetation, have become very popular. And the same is in Russia.

A lot of teens go in for different kinds of sports. Sport helps them to feel as fit as a fiddle. In both countries there are special programmes for problem teenagers such as a high­risk activity, for example they are taught to jump out of aeroplanes. But despite the increase in the number of teens participating in sports, the majority of young people still prefer to be spectators. They prefer to be couch potatoes.

Watching sports on TV is a popular leisure activity, as is going to football matches on Saturday. Cinemas have been redesigned with four or more screens, each showing a different film at the same time, and a lot of teens like going to the cinemas too.

A young generation is fond of communication. There are many available methods of communication nowadays, and the most popular one is a computer. A lot of teenagers spend plenty of time working on the computers. The Internet seems really a good fun. You may send e­mail to friends from different countries and get their answers at once.

You even may talk to them. It is easy and quick. A lot of teenagers have mobile telephones so they can always be contacted if they keep their telephone switched on at any time of the day or night.

A lot of teenagers in both countries are crazy about animals. They race them, train them and breed them. They like to hear stories about them on television programmes and they like reading books about them. Many teens have a pet animal. It could be a dog, a cat, a goldfish, a bird or a small animal like a hamster. Looking after and being kind to their pets is very important for teens. Why are the teens so interested in animals? Perhaps it’s because they are rather shy in their heart of hearts. One of my friends says: “I like my dog, because she never thinks I’m silly.”

There are plenty of other kinds of activities such as

travel­ling, visiting historic places, baby­sitting, delivering news­papers, putting together jigsaw puzzles, reading, going to different museums, skateboarding, going fishing, hitchhiking, doing the shopping, helping people in need, joining a computer club and others. We can say, “So many teens, so many kinds of activities.”

Well, some words about me. I am fifteen and I am a computer addict. I am fond of communication with other teens. That’s why I have a lot of friends in my country and other ones. We send messages from one computer to another one using e­mail, we have online conversations. I am a member of a computer club and I spend a lot of time there. Of course, it’s rather expensive but my parents understand me and give me enough money to pay for my computer club. And I think that my hobby will be useful in my future profession. Besides I spend my free time in a sports club. I go in for kung fu. Recently films about kung fu have become very popular in Russia. This fighting itself is a great art, the result of many years of hard work and self-discipline. The man who made kung fu films famous was Bruce Lee. Now people know what kung fu is, and I think it may become a sport of the future because it brings up your personality, will and nobility.

3.Ответы на вопросы по тексту.

1. Why is Britain described as a leisure society?
2. What leisure activities have become popular recently among British teenagers?
3. What about sport activities?
4. Why do a lot of teens go in for different kinds of sport?
5. What risky sport is mentioned in the text?
6. What does it mean to be ‘a coach potato’?
7. Why are young people fond of Internet?
8. Prove that a lot of teenagers in both countries are crazy about animals?
9. Speak about the proverb ‘So many teens, so many kinds of activities’.

4. Чтение вслух и перевод последнего абзаца.

5.Вам нужно написать письмо другу по переписке о досуге молодежи в вашей стране.

Напишите 10 предложений в тетради пользуясь материалом из текста.

**Работа с текстом на тему « Здоровый образ жизни»**

*Установите соответствие между темами****A-H****и текстами****1-7.****Используйте каждую букву только один раз. В задании одна тема лишняя.*

**A**. Don't Ignore Warning Signs

**B**. Use Alternative Medicine

**C**. Staying in Shape is Important

**D**. Threat to Your Eyesight

**E**. Turn a Bad Habit into a Good Idea

**F**. Fat People Are at Risk

**G**. Prevention Is Better Than Cure

**H**. Choose Proper Nutrition

1. There are numerous problems associated with obesity. It is not just a cosmetic problem but also a health hazard. Doctors generally agree that the more obese a person is, the more likely he or she is to have health problems. This is because obesity has been linked to several serious medical conditions. People who are overweight can gain significant health benefits from losing weight.

2. Hey, couch potato! Don't feel guilty indulging in serials or reality shows — use the commercials as an excuse to burn calories. There is probably an average of 15 minutes of commercials in an hour-long program. If you exercised through each commercial break during just two hours of TV, you'd already have met the recommended amount of daily exercise necessary to reduce health risks.

3. Regular checkups are a valuable tool in maintaining good health. Taking proper care of your health at the right time can help avoid a lot of problems in the future. The main aim of a checkup is to detect illness at an early stage. It's good to find out that you have a health problem before it is too late so appropriate tests should be done at the right time.

4. Do you mainly exercise for a few weeks in January before you forget your New Year's resolution, and then again when you realize your summer holiday is around the corner? You'd not be alone, but keeping fit is something you should do all year round. You might not be particularly bothered about your appearance or your weight, but keeping fit is as much about what's on the inside as it is what's on the outside.

5. Pain is our body's means to indicate that something is wrong and requires immediate attention. Pain for a short time can be taken care of by a painkiller but if the soreness is lingering for too long, then it requires proper medical expertise. Sometimes life menacing problems have back pain and joint pain as symptoms and can, if neglected, do permanent damage.

6. Think about your car — the higher the grade of the fuel you put in it, the better it runs. Your body works the same way. If you eat healthy foods, you'll be healthier and feel better. Eating well is easy if you're aware of what foods are best for you. But don't worry! Eating healthy food doesn't mean eliminating every single thing you love from your diet.

7. Do you spend more than 3 hours a day working or maybe playing on a computer? If so, you are at a higher risk than casual computer users. Researchers warn that watching a computer screen for six or more hours a day might be linked to a progressive eye disease. This does not mean, however, that people who work on a computer for less than 3 hours a day will not suffer eye complications due to computer use.

**Ответы 1F 2E 3G 4 C 5A 6H 7 D**

2. Найти в тексте, выписать и проранжировать полезные советы.

* 4.Lose weight because in this case you can gain significant health benefits.
* 7.While watching TV do physical exercises through each commercial.
* 3.Regular checkups are a valuable tool in maintaining good health. It will help to avoid a lot of problems in the future and to detect illness at an early stage.
* 1Try to keep fit all year round because keeping fit is as much about what’s on the inside as it is what’s on the outside.
* 6.Don’t neglect pain because it can do permanent damage. Pain requires proper medical expertise.
* 2.Eat healthy foods. Eat the food which is best for you. Doing so you’ll be healthier and feel better.
* 5.Don’t spend more than three hours working or playing on a computer because it may lead to a progressive eye disease.

**Работа с текстом «Британское правительство»**

**1) Put the passages in the right order.**

1 The United Kingdom or UK is a political term which includes England, Scotland, Wales and Northern Ireland. All of these countries are represented in Parliament in London, and the abbreviation UK is used on most official documents produced by Parliament. Britain is split into counties. The word *county* describes an area with its own local government. County councils are elected to run things, such as education, housing, town planning, and rubbish disposal. They look after things like roads, libraries and swimming pools.

2 In Britain the Queen is the Head of State, but in fact she doesn't rule the country.The most important function of the queen is ceremonial. The Queen is a symbol of the country, its history and its traditions. She is very rich. She travels about the United Kingdom, meets different people and visits schools, hospitals and other public places.

3 The real power in the country belongs to the British Parliament and to the British Government. The British Parliament has two houses, or chambers: the House of Commons and the House of Lords. The House of Commons is the most powerful and decides national policy, but the House of Lords can ask the House of Commons to rewrite certain parts of a bill before it becomes a new law.

4 The House of Commons consists of Members of Parliament, or MPs. The British people elect 650 members of the House of Commons every five years. The 1,203 members of the House of Lords are not elected. These members are permanent.

They are often aristocrats, people of the church, lawyers and former politicians.

5 The head of both Houses of Parliament is the Queen but she has very little power. It is the Queen who formally opens Parliament every autumn but the speech she makes from the throne is written for her by politicians. Nothing becomes British law without the monarch’s signature, but the Queen would never refuse to sign a bill which has been passed by parliament.

6 The British flag, known as the *Union Jack*, is a combination of three flags: the Saint Andrew’s cross, the Saint Patrick’s cross and the Saint George’s cross.

7 The Saint George’s cross is the English flag. Saint George is the patron saint of England. He was a soldier famous for saving the Princess Cleolinda from being eaten by a dragon. Saint George’s Day is celebrated on 23 April. The symbol of England is a red rose.

8 The Saint Andrew’s cross is the Scottish flag. Saint Andrew, a fisherman, was one of the 12 apostles who followed Jesus Christ. Paintings of Saint Andrew often show him being crucified on an X-shaped cross. Saint Andrew’s Day is celebrated

on 30 November. He is the patron saint of both Scotland and Russia. The symbol of Scotland is a thistle.чертополох

9.The Welsh flag shows a dragon. Saint David, the patron saint of Wales, converted Wales to Christianity and established the Welsh church. Paintings of Saint David show him with a dove on his shoulder. Saint David’s Day is celebrated on 1 March. The symbol of Wales is a daffodil нарцисс or leek.

10.The Saint Patrick’s cross is the former flag of Ireland. Saint Patrick is the patron saint of Ireland. He was born about AD 390. He converted the Irish to Christianity. Saint Patrick’s Day is celebrated on 17 March. The symbol of Northern Ireland is a shamrock.Трилистник

**Ответы**

**A** The Saint Andrew’s cross is the Scottish flag. Saint Andrew, a fisherman, was one of the 12 apostles who followed Jesus Christ. Paintings of Saint Andrew often show him being crucified on an X-shaped cross. Saint Andrew’s Day is celebrated on 30 November. He is the patron saint of both Scotland and Russia. The symbol of Scotland is a thistle. Чертополох

**B** The real power in the country belongs to the British Parliament and to the British Government. The British Parliament has two houses, or chambers: the House of Commons and the House of Lords. The House of Commons is the most powerful and decides national policy, but the House of Lords can ask the House of Commons to rewrite certain parts of a bill before it becomes a new law.

**C** The British flag, known as the *Union Jack*, is a combination of three flags: the Saint Andrew’s cross, the Saint Patrick’s cross and the Saint George’s cross.

**D** The head of both Houses of Parliament is the Queen but she has very little power. It is the Queen who formally opens Parliament every autumn but the speech she makes from the throne is written for her by politicians. Nothing becomes British law without the monarch’s signature, but the Queen would never refuse to sign a bill which has been passed by parliament.

**E** The Saint George’s cross is the English flag. Saint George is the patron saint of England. He was a soldier famous for saving the Princess Cleolinda from being eaten by a dragon. Saint George’s Day is celebrated on 23 April. The symbol of England is a red rose.

**F** The House of Commons consists of Members of Parliament, or MPs. The British people elect 650 members of the House of Commons every five years. The 1,203 members of the House of Lords are not elected. These members are permanent.

They are often aristocrats, people of the church, lawyers and former politicians.

**G** The Saint Patrick’s cross is the former flag of Ireland. Saint Patrick is the patron saint of Ireland. He was born about AD 390. He converted the Irish to Christianity. Saint Patrick’s Day is celebrated on 17 March. The symbol of Northern Ireland is a shamrock. трилистник

**H** In Britain the Queen is the Head of State, but in fact she doesn't rule the country. The most important function of the queen is ceremonial. The Queen is a symbol of the country, its history and its traditions. She is very rich. She travels about the United Kingdom, meets different people and visits schools, hospitals and other public places.

**I** The Welsh flag shows a dragon. Saint David, the patron saint of Wales, converted Wales to Christianity and established the Welsh church. Paintings of Saint David show him with a dove on his shoulder. Saint David’s Day is celebrated on 1 March. The symbol of Wales is a daffodil нарцисс or leek.

**J**The United Kingdom or UK is a political term which includes England, Scotland, Wales and Northern Ireland. All of these countries are represented in Parliament in London, and the abbreviation UK is used on most official documents produced by Parliament. Britain is split into counties. The word *county* describes an area with its own local government. County councils are elected to run things, such as education, housing, town planning, and rubbish disposal. They look after things like roads, libraries and swimming pools.

**2) Name the character.**

* She travels about the United Kingdom, meets different people and visits schools, hospitals and other public places. -Queen
* decides national policy.- The House of Commons
* consists of Members of Parliament -The House of Commons
* They look after things like roads, libraries and swimming pools.- County councils
* members of this chamber are not elected. The House of Lords
* consists of 1,203 members -the House of Lords
* The members of this chamber are often aristocrats, people of the church, lawyers and former politicians- the House of Lords
* is shown in pictures with a dove on his shoulder.- Saint David
* formally opens Parliament - Queen
* The British people elect 650 members to this chamber every five years. The House of Commons
* Paintings of this saint often show him being crucified on an X-shaped cross. -Saint Andrew
* He was a soldier famous for saving the Princess from being eaten by a dragon. -St George
* she has very little power-Queen
* established the Welsh church. -Saint David
* He is the patron saint of both Scotland and Russia.- Saint Andrew
* A symbol of the country history and its traditions-Queen
* are elected to run things, such as education, housing, town planning, and rubbish disposal- County councils
* makes the speech from the throne- Queen
* a fisherman, was one of the 12 apostles who followed Jesus Christ. -Saint Andrew

**3) Ask and answer questions on the text.**

1. What is the UK?
2. What does the word ‘county’ mean?
3. What is the role of the Queen in Britain?
4. Who does the real power in Britain belong to?
5. What does the British Parliament consist of?
6. What is the difference between the Commons and the Lords?
7. What do you know about the Union Jack?
8. What do you know about the patron saints in the UK?
9. Can you compare British and Russian political systems?

**Работа с текстом «Популярные виды спорта в Великобритании».**

The British are a sporting nation. Like everyone else they love football - in fact, they invented it. Most British towns and cities have a football team. Every year, each team plays in the Football Association competition. The two best teams play in the Cup Final at Wembley Stadium in London. Some fans pay up to 200 pounds for a ticket for the Cup Final. It is one of the biggest sporting events of the year.

Tennis is another popular game in Britain. Every summer, in June, the biggest international tennis tournament takes place at Wimbledon, a suburb of London. There are strawberries and cream for sale, and everyone hopes the rain will stay away.

The British play many sports that are unknown in most other countries, for example: cricket, squash and netball.

Cricket is a typically British sport which foreigners have difficulty in understanding. The game looks slow, but it can be exciting if you understand what’s going on. There are two teams of eleven players: one man (the ‘bowler’) throws the ball, and the ‘batsman’ hits it with his bat. Cricket is a very long game. Matches last from one to five days.

Squash is another British invention. It is a form of tennis. There are two players and they use rackets similar to tennis rackets and a small, black rubber ball. They play indoors. It is a very fast and tiring sport!

Netball is similar to basketball. There are seven players (usually girls or women) in each team and the object of the game is the same as in basketball: to throw the ball through a net at the top of a three - metre post.

Swimming is very popular in Britain and there are many public swimming baths. Many British people who live near the sea, a lake, or a river enjoy sailing. If you are really enthusiastic, and rich enough to buy your own boat, you can take part in one of the annual sailing races or "regattas" at Cowes, near Portsmouth, for example, or at Henley on the river Thames.

Golf is becoming increasingly popular. Golf is a game of business community. In Great Britain it is very common to establish good business relations playing golf. The equipment for this game is quite expensive as well as the entrance to a prestigious golf club, so not everyone can afford it. Golf is a ball and golf stick game played on a natural field. In this game one has to knock a ball into a hole.

Basketball and volleyball are not very popular in Britain, but many people play rugby. Rugby is one type of football, in which the players carry an oval ball in their hands, appeared in 1859 at Rugby School. The rules of the game are different from football (soccer).

Wintersportslike skiing are generally impossible in Great Britain owing to the unsuitable climate. Skiing enthusiasts can ski in certain parts of Scotland or they go to Austria, Italy, France or Switzerland.

Sport in British schools is compulsory and schoolchildren spend at least one afternoon a week playing sport. These are some of the sports played in most British secondary schools. In winter boys play football or rugby and go cross - country running, while girls play netball or hockey. Some boys' schools also teach rowing. In summer boys play cricket, do athletics or go swimming, while girls play rounders (a British version of baseball), do athletics or go swimming. Tennis is also played in summer in some schools by boys and girls.

* + - 1. **What kind of sport am I speaking about?**

1. The two best teams play in the Cup Final at Wembley Stadium in London.-Football
2. There are seven players (usually girls or women) in each team- Netball
3. generally impossible in Great Britain owing to the warm climate.-Skiing
4. are not very popular in Britain- Basketball and volleyball
5. Many British people who live near the sea, a lake, or a river enjoy this kind of sports -Sailing.
6. the players carry an ovalball in their hands-rugby
7. a British version of baseball- Rounders
8. Every summer, in June, the biggest international tournament takes place at Wimbledon. Tennis
9. In Great Britain it is very common to establish good business relations playing this kind of game Golf.
10. A very long game. Matches last from one to five days. Cricket

**2. Заполните пропуски.**

1. The British people ……football. (Invented)
2. The ticket to the Cup Final costs….(200 pounds)
3. Wimbledon is a ….of Lodon.(suburb)
4. During Wimbledon tournament people very often buy … (strawberries and cream)
5. Many foreigners don’t…cricket (understand)
6. Cricket is a typically …game. (British)
7. In squash two players use… and a ….ball.(rackets, rubber)
8. In netball players must throw the ball through ….at the top of a three - metre post.( a net)
9. If you are really……, and rich enough to buy your own…., you can take part in one of the annual sailing races (enthusiastic, boat)
10. In this game one has … a ball into a hole. to knock
11. so not everyone can …golf because it is very expensive( afford)
12. Rugby –a type of football which …. in 1859 at Rugby School, (appeared)
13. Skiing ….can ski in certain parts of Scotland or they go to Austria, Italy, France or Switzerland. (enthusiasts)

**3.Ответьте на вопросы по тексту**

1. What are the most popular sports in Britain?
2. What sport events take place in at Wembley?
3. What sport events take place in at Wimbldon?
4. What sport is very slow? Explain the rules of this sport?
5. Explain the rules of squash.
6. What is the object of netball?
7. What is ‘reggata’?
8. Tell a few words about the favorite game of business people.
9. Why is skiing not popular in Great Britain?
10. What are some of the sports played in most British secondary schools?

**Работа с текстом «Микроэлектроника»**

**1)Прочитать и перевести первый абзац.**

**2)Выпишите из текста все достижения в области микроэлектроники с кратким описанием.**

Nanoelectronics refer to the use of [nanotechnology](https://en.wikipedia.org/wiki/Nanotechnology) in [electronic](https://en.wikipedia.org/wiki/Electronics) components. The term covers a diverse set of devices and materials, with the common characteristic that they are so small that inter-atomic interactions and [quantum mechanical](https://en.wikipedia.org/wiki/Quantum_mechanics) properties need to be studied extensively. Some of these candidates include: hybrid molecular/[semiconductor](https://en.wikipedia.org/wiki/Semiconductor) electronics, one-dimensional одномерные нанотрубки  [nanotubes](https://en.wikipedia.org/wiki/Carbon_nanotubes)/[nanowires](https://en.wikipedia.org/wiki/Nanowire) (e.g. [Silicon nanowires](https://en.wikipedia.org/wiki/Silicon_nanowire) or [Carbon nanotubes](https://en.wikipedia.org/wiki/Carbon_nanotubes)) or advanced [molecular electronics](https://en.wikipedia.org/wiki/Molecular_electronics). Recent [silicon](https://en.wikipedia.org/wiki/Silicon) [CMOS](https://en.wikipedia.org/wiki/CMOS) technology generations, such as the [22 nanometer](https://en.wikipedia.org/wiki/22_nanometer) node, are already within this regime. Nanoelectronics are sometimes considered as [disruptive революционный technology](https://en.wikipedia.org/wiki/Disruptive_technology) because present candidates are significantly different from traditional transistors.

Molecular evolution has resulted in working [cilia](https://en.wikipedia.org/wiki/Cilium), [flagella](https://en.wikipedia.org/wiki/Flagellum), muscle fibers and rotary motors реснички, жгутики, мышечные волокна и роторные двигатели in aqueous environments, all on the nanoscale. These machines exploit the increased frictional forces found at the micro or nanoscale. Cilia develop motion from the exaggerated drag преувеличенное сопротивление or laminar forces (frictional forces parallel to the surface) present at micro and nano dimensions. with limited real world applications These elements are widely used in such devices as moving mirrors and shutters.

All scaling issues therefore need to be assessed thoroughly when evaluating nanotechnology for practical applications.

Nanofabrication

Nanofabrication can be used to construct ultradense parallel arrays совокупность of [nanowires](https://en.wikipedia.org/wiki/Nanowire), as an alternative to synthesizing [nanowires](https://en.wikipedia.org/wiki/Nanowires) individually.

Nanomaterials Electronics

Besides being small and allowing more transistors to be packed into a single chip, the uniform and symmetrical structure of [nanowires](https://en.wikipedia.org/wiki/Silicon_nanowire) and/or nanotubes allows a higher [electron mobility](https://en.wikipedia.org/wiki/Electron_mobility) , a higher  frequency, and a symmetrical [electron](https://en.wikipedia.org/wiki/Electron) characteristic.

Molecular Electronics

Single molecule devices are another possibility. These schemes would make heavy use of [molecular self-assembly](https://en.wikipedia.org/wiki/Molecular_self-assembly), designing the device components to construct a larger structure or even a complete system on their own. This can be very useful for [reconfigurable computing](https://en.wikipedia.org/wiki/Reconfigurable_computing), and may even completely replace present [FPGA](https://en.wikipedia.org/wiki/Field-programmable_gate_array) technology.A field-programmable gate array (FPGA) is an integrated circuit designed to be configured by a customer or a designer after manufacturing – hence "field-programmable

Other Approaches

[Nanoionics](https://en.wikipedia.org/wiki/Nanoionics) studies the transport of ions rather than electrons in nanoscale systems.

[Nanophotonics](https://en.wikipedia.org/wiki/Nanophotonics) studies the behavior of light on the nanoscale, and has the goal of developing devices that take advantage of this behavior.

Nanoelectronic Devices

Nanoelectronicsholds the promise of making [computer processors](https://en.wikipedia.org/wiki/Computer_processor) more powerful than are possible with conventional [semiconductor fabrication](https://en.wikipedia.org/wiki/Semiconductor_fabrication) techniques. A number of approaches are currently being researched, including new forms of [nanolithography](https://en.wikipedia.org/wiki/Nanolithography), as well as the use of [nanomaterials](https://en.wikipedia.org/wiki/Nanomaterials) such as [nanowires](https://en.wikipedia.org/wiki/Nanowire) or [small molecules](https://en.wikipedia.org/wiki/Molecular_logic_gate) in place of traditional [CMOS](https://en.wikipedia.org/wiki/CMOS) components. [Field effect transistors](https://en.wikipedia.org/wiki/Field_effect_transistors) have been made using both semiconducting [carbon nanotubes](https://en.wikipedia.org/wiki/Carbon_nanotube) and with heterostructured semiconductor [nanowires](https://en.wikipedia.org/wiki/Silicon_nanowire) (SiNWs).

Memory Storage

Electronic memory designs in the past have largely relied on the formation of transistors. However, research into [crossbar switch](https://en.wikipedia.org/wiki/Crossbar_switch) переключатель поперечный based electronics have offered an alternative using reconfigurable перестраиваемый interconnections between vertical and horizontal wiring arrays to create ultra high density memories. Two leaders in this area are [Nantero](https://en.wikipedia.org/wiki/Nantero) which has developed a carbon nanotube based crossbar memory called [Nano-RAM](https://en.wikipedia.org/wiki/Nano-RAM) and [Hewlett-Packard](https://en.wikipedia.org/wiki/Hewlett-Packard) which has proposed the use of [memristor](https://en.wikipedia.org/wiki/Memristor) material as a future replacement of Flash memory.The dependence of the resistance of a material (due to the spin of the electrons) on an external field is called [magnetoresistance](https://en.wikipedia.org/wiki/Magnetoresistance). This effect can be significantly amplified (GMR - Giant Magneto-Resistance) for nanosized objects, for example when two ferromagnetic layers are separated by a nonmagnetic layer, which is several nanometers thick (e.g. Co-Cu-Co). The GMR effect has led to a strong increase in the data storage density of hard disks and made the gigabyte range possible. The so-called tunneling magnetoresistance (TMR). Both GMR and TMR effects can be used to create a magnetic random access memory магнитная память случайного доступа or [MRAM](https://en.wikipedia.org/wiki/MRAM) on the computers.

Novel Optoelectronic Devices

In the modern communication technology traditional analog electrical devices are increasingly replaced by optical or [optoelectronic](https://en.wikipedia.org/wiki/Optoelectronic) devices due to their enormous bandwidth and capacityмощность. Two promising examples are [photonic crystals](https://en.wikipedia.org/wiki/Photonic_crystals) and [quantum dots](https://en.wikipedia.org/wiki/Quantum_dots). Photonic crystals are materials with a periodic variation in the refractive index показательпреломления with a lattice constantпостоянныерешетки that is half the wavelength of the light used. They offer a selectable band gap дискретныйзазордиапазона for the propagation распространение of a certain wavelength, thus they resemble a semiconductor, but for light or [photons](https://en.wikipedia.org/wiki/Photon) instead of [electrons](https://en.wikipedia.org/wiki/Electron). Quantum dots are nanoscaled objects, which can be used, among many other things, for the construction of lasers. The advantage of a quantum dot laser over the traditional semiconductor laser is that their emitted wavelength depends on the diameter of the dot. Quantum dot lasers are cheaper and offer a higher beam quality than conventional laser diodes.

Displays

The production of displays with low energy consumption might be accomplished using [carbon nanotubes](https://en.wikipedia.org/wiki/Carbon_nanotubes) (CNT) and/or [Silicon nanowires](https://en.wikipedia.org/wiki/Silicon_nanowire). Such nanostructures are electrically conductive and due to their small diameter of several nanometers, they can be used as field emitters with extremely high efficiency for [field emission displays](https://en.wikipedia.org/wiki/Field_emission_display) (FED). The principle of operation resembles that of the [cathode ray tube](https://en.wikipedia.org/wiki/Cathode_ray_tube), but on a much smaller length scale

Quantum Computers

Entirely new approaches for computing exploit the laws of quantum mechanics for novel quantum computers, which enable the use of fast quantum algorithms. The Quantum computer has quantum bit memory space termed "Qubit" for several computations at the same time. This facility may improve the performance of the older systems.

Radios

[Nanoradios](https://en.wikipedia.org/wiki/Nanoradios) have been developed structured around [carbon nanotubes](https://en.wikipedia.org/wiki/Carbon_nanotube).

Energy Production

Research is ongoing to use nanowires and other nanostructured materials with the hope to create cheaper and more efficient [solar cells](https://en.wikipedia.org/wiki/Solar_cell) than are possible with conventional planarплоскостной silicon solar cells. It is believed that the invention of more efficient solar energy would have a great effect on satisfying global energy needs.

There is also research into energy production for devices that would operate [*in vivo*](https://en.wikipedia.org/wiki/In_vivo), called bio-nano generators. A bio-nano generator is a [nanoscale](https://en.wikipedia.org/wiki/Nanotechnology) [electrochemical](https://en.wikipedia.org/wiki/Electrochemistry) device, like a [fuel cell](https://en.wikipedia.org/wiki/Fuel_cell) or [galvanic cell](https://en.wikipedia.org/wiki/Galvanic_cell), but drawing power from [blood glucose](https://en.wikipedia.org/wiki/Blood_glucose) in a living body, much the same as how the body generates [energy](https://en.wikipedia.org/wiki/Energy) from [food](https://en.wikipedia.org/wiki/Food). The average person's body could, theoretically, generate 100 [watts](https://en.wikipedia.org/wiki/Watt) of [electricity](https://en.wikipedia.org/wiki/Electricity)(about 2000 food calories per day) using a bio-nano generator.  The electricity generated by such a device could power devices embedded in the body (such as [pacemakers](https://en.wikipedia.org/wiki/Artificial_pacemaker)) кардиостимулятор, or sugar-fed [nanorobots](https://en.wikipedia.org/wiki/Nanorobotics). Much of the research done on bio-nano generators is still experimental, with [Panasonic](https://en.wikipedia.org/wiki/Panasonic)'s Nanotechnology Research Laboratory among those at the forefront.

Medical Diagnostics

There is great interest in constructing nanoelectronic devices that could detect the concentrations of [biomolecules](https://en.wikipedia.org/wiki/Biomolecule) in real time for use as medical diagnostics, thus falling into the category of [nanomedicine](https://en.wikipedia.org/wiki/Nanomedicine). A parallel line of research seeks to create nanoelectronic devices which could interact with single [cells](https://en.wikipedia.org/wiki/Cell_(biology)) for use in basic biological research. These devices are called [nanosensors](https://en.wikipedia.org/wiki/Nanosensor). Such miniaturization on nanoelectronics towards in vivo proteomic sensing should enable new approaches for health monitoring, surveillance, and defense technology. Протеомика — область молекулярной биологии

**Работа с текстом «Relationship-building in the World of Business».**

When we talk about the competency of relationship- building in the world of business, we are referringto building strong relationships with partners and

clients about using interpersonal skills to network in an effective way.

Seven steps to becoming an effective relationship-builder:

-Draw up a plan of what you need to do in order to give your clients what they wan. Discuss your ideas with your line manager and then do what is necessary to implement the plan.  
-When the plan has been set in motion, schedule regular meetings with your line manager to review the progress that you are making and make any necessary adjustments.  
-When you are working as part of a team or group within a department or a company it is important to assess your contribution to the group’s work. Think about how your efforts help or hinder progress.  
-Make a weekly analysis of your commitments. Set yourself a goal for each week so that you follow them through. Make an effort to do what you say you are going to do – and also, to do it by the time that you say it will be done. If you get into the habit of doing this it will become like second nature.  
 -Build up a file of contacts and classify them in a way that is meaningful for your particular work context. Then you will know exactly who to call with any queries or when you need information.  
-Don’t just wait for feedback to come to you, request it from a variety of sources – from your line

manager but also from colleagues, clients and people who you supervise. Listen to what they have to say and act accordingly.  
-Build informal relationships with the people who are working around you. Make a point of greeting people who you normally don’t speak to. Ask them about their interests and make it a goal to practice small talk with them. Listen to what they say and remember so that you can ask about a particular interest the next time you meet.

1. Finish the sentences.

When we talk about the competency of relationship- building in the world of business, we are referringto building strong relationships with partners and

clients about using interpersonal skills to network in an  1\_\_\_\_\_\_\_\_\_\_\_.

Seven steps to becoming an effective relationship-builder:

-Draw up a plan of what you need to do in order to give your clients  2\_\_\_\_\_\_\_\_. Discuss your ideas with your line manager and then do what is necessary to implement the plan.  
-When the plan has been set in motion, schedule regular meetings with your line manager to review the progress that you are making and make 3\_\_\_\_\_\_\_\_\_\_\_.  
- When you are working as part of a team or group within a department or a company it is important to assess your contribution to the group’s work. Think about how your efforts 4\_\_\_\_\_\_\_\_\_\_.  
-Make a weekly analysis of your commitments. Set yourself a goal for each week so that you 5\_\_\_\_\_\_\_\_\_. Make an effort to do what you say you are going to do – and also, to do it by the time that you say it will be done. If you get into the habit of doing this it will become like second nature.  
 -Build up a file of contacts and classify them in a way that is meaningful for your particular work context. Then you will know exactly who to call with any queries or 6\_\_\_\_\_\_.  
-Don’t just wait for feedback to come to you, request it from a variety of sources – from your line manager but also from colleagues, clients and people 7\_\_\_\_\_\_. Listen to what they have to say and act accordingly.  
-Build informal relationships with the people who are working around you. Make a point of greeting people 8\_\_\_\_\_\_\_. Ask them about their interests and make it a goal to practice small talk with them. Listen to what they say and remember so that you can ask about a particular interest the next time you meet.

1. who you normally don’t speak to
2. any necessary adjustments
3. follow them through
4. what they want
5. who you supervise
6. to work together and help each other
7. when you need information
8. effective way
9. help or hinder progress

**Ответы.1Н 2D 3B 4I 5C 6G 7E 8A**

2. Find the expressions.

1. Составить план
2. Внедрить план в действие
3. Проследить прогресс
4. Внести необходимые изменения
5. Оценить свой вклад в работу группы
6. Помогать или мешать прогрессу
7. Поставить себе цель
8. Делать усилие
9. Приобрести привычку
10. Значимый
11. Опрос
12. Руководить
13. Действовать соответствующим образом
14. Выстроить неформальные отношения
15. Немного поболтать

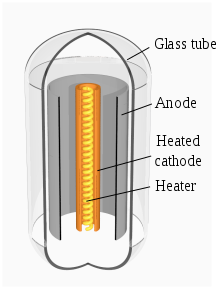
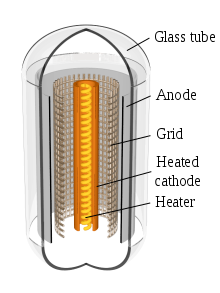
3.Answer the questions.

1. If you have any good ideas whom should you discuss your ideas with?
2. When should you make necessary adjustments?
3. What is important when you are working with a team?
4. What should you do each week?
5. For what purpose should you build up a file of contacts?
6. What must you request from your manager, colleagues and clients?
7. How to build informal relationships with the people who are working around you?

**Работа с текстом « Описание вакуумной трубки».**

1. In [electronics](https://en.wikipedia.org/wiki/Electronics), a **vacuum tube**, an **electron tube**, or just a **tube**, or **valve** is a device that controls [electric current](https://en.wikipedia.org/wiki/Electric_current) between [electrodes](https://en.wikipedia.org/wiki/Electrode) in an [evacuated](https://en.wikipedia.org/wiki/Vacuum) container.
2. Vacuum tubes mostly rely on [thermionic emission](https://en.wikipedia.org/wiki/Thermionic_emission) of electrons from a hot [filament](https://en.wikipedia.org/wiki/Electrical_filament) or a [cathode](https://en.wikipedia.org/wiki/Hot_cathode) heated by the filament.
3. The simplest vacuum tube, the [diode](https://en.wikipedia.org/wiki/Diode), contains only a heater, a heated electron-emitting cathode, and a plate (anode).
4. Adding one or more [control grids](https://en.wikipedia.org/wiki/Control_grid) within the tube allows the current between the cathode and anode to be controlled by the voltage on the grid or grids.
5. Tubes with grids can be used for many purposes, including [amplification](https://en.wikipedia.org/wiki/Amplifier), [rectification](https://en.wikipedia.org/wiki/Rectifier), [switching](https://en.wikipedia.org/wiki/Electronic_switch), [oscillation](https://en.wikipedia.org/wiki/Electronic_oscillator), and [display](https://en.wikipedia.org/wiki/Cathode_ray_tube).
6. Invented in 1904 by [John Ambrose Fleming](https://en.wikipedia.org/wiki/John_Ambrose_Fleming), vacuum tubes were a basic component for electronics throughout the first half of the twentieth century, which saw the diffusion of radio, television, radar, [sound reinforcement](https://en.wikipedia.org/wiki/Sound_reinforcement_system), [sound recording and reproduction](https://en.wikipedia.org/wiki/Sound_recording_and_reproduction), large [telephone](https://en.wikipedia.org/wiki/Telephone) networks, analog and digital [computers](https://en.wikipedia.org/wiki/Computers), and industrial [process control](https://en.wikipedia.org/wiki/Process_control).

Tubes have different functions, such as [cathode ray tubes](https://en.wikipedia.org/wiki/Cathode_ray_tube) which create a beam of electrons for display purposes (such as the television picture tube) in addition to more specialized functions such as [electron microscopy](https://en.wikipedia.org/wiki/Electron_microscopy) and [electron beam lithography](https://en.wikipedia.org/wiki/Electron_beam_lithography). [X-ray tubes](https://en.wikipedia.org/wiki/X-ray_tube) are also vacuum tubes. [Phototubes](https://en.wikipedia.org/wiki/Phototube) and [photomultipliers](https://en.wikipedia.org/wiki/Photomultiplier) rely on electron flow through a vacuum, though in those cases electron emission from the cathode depends on energy from [photons](https://en.wikipedia.org/wiki/Photon) rather than [thermionic emission](https://en.wikipedia.org/wiki/Thermionic_emission).

[](https://en.wikipedia.org/wiki/File:Diode-english-text.svg)[](https://en.wikipedia.org/wiki/File:Triode-english-text.svg)

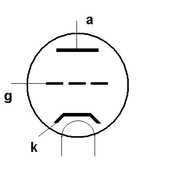
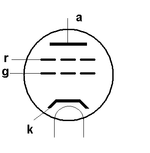
*Diode: electrons from the hot cathode Triode: voltage applied to the grid controls plate current current*

*flow towards the positive anode,*

*but not vice versa*

A vacuum tube consists of two or more [electrodes](https://en.wikipedia.org/wiki/Electrode) in a vacuum inside an airtight enclosure. Most tubes have glass envelopes with a [glass-to-metal seal](https://en.wikipedia.org/wiki/Glass-to-metal_seal) based on [kovar](https://en.wikipedia.org/wiki/Kovar) sealable [borosilicate glasses](https://en.wikipedia.org/wiki/Borosilicate_glass), though ceramic and metal envelopes (atop insulating bases) have been used. The electrodes are attached to leads which pass through the envelope via an airtight seal.

Most modern tubes are "indirectly heated" by a "heater" element inside a metal tube that is the cathode. The heater is electrically isolated from the surrounding cathode and simply serves to heat the cathode sufficiently for [thermionic emission](https://en.wikipedia.org/wiki/Thermionic_emission) of electrons. The electrical isolation allows all the tubes' heaters to be supplied from a common circuit (which can be AC without inducing hum) while allowing the cathodes in different tubes to operate at different voltages.

[](https://en.wikipedia.org/wiki/File:General_electric_pliotron_pp_schenectady_3.jpg)[](https://en.wikipedia.org/wiki/File:Triode.PNG)[](https://en.wikipedia.org/wiki/File:Tetrode.PNG)

*Triode symbol. From top to bottom: plate (anode), control grid, cathode, heater (filament)*

*Tetrode symbol. From top to bottom: plate (anode), screen grid, control grid, cathode, heater (filament)*

*General Electric Company Pliotron,*[*Chemical Heritage Foundation*](http://www.chemheritage.org/)

To combat the stability problems and limited voltage gain due to the [Miller effect](https://en.wikipedia.org/wiki/Miller_effect), the physicist [Walter H. Schottky](https://en.wikipedia.org/wiki/Walter_H._Schottky) invented the tetrode tube in 1919. He showed that the addition of a second grid, located between the control grid and the plate (anode), known as the [*screen grid*](https://en.wikipedia.org/wiki/Screen_grid), could solve these problems. ("Screen" in this case refers to electrical "screening" or shielding, not physical construction: all "grid" electrodes in between the cathode and plate are "screens" of some sort rather than solid electrodes since they must allow for the passage of electrons directly from the cathode to the plate). A positive voltage slightly lower than the plate (anode) voltage was applied to it, and was bypassed (for high frequencies) to ground with a capacitor. This arrangement decoupled the anode and the [control grid](https://en.wikipedia.org/wiki/Control_grid), essentially eliminating the Miller capacitance and its associated problems. Consequently, higher voltage gains from a single tube became possible, reducing the number of tubes required in many circuits. This two-grid tube is called a [*tetrode*](https://en.wikipedia.org/wiki/Tetrode), meaning four active electrodes, and was common by 1926.

[](https://en.wikipedia.org/wiki/File:6L6tubespair.jpg)[](https://en.wikipedia.org/wiki/File:6Z4_var.jpg)[](https://en.wikipedia.org/wiki/File:GS-9B.JPG)

*6L6 tubes in glass envelopes Metal-cased tubes with octal bases High power GS-9B triode transmitting tube with heat sink at bottom.*

Most modern tubes have glass envelopes, but metal, fused quartz ([silica](https://en.wikipedia.org/wiki/Silica)) and [ceramic](https://en.wikipedia.org/wiki/Ceramic) have also been used. Metal and ceramic are used almost exclusively for power tubes above 2 kW dissipation. The [nuvistor](https://en.wikipedia.org/wiki/Nuvistor) was a modern receiving tube using a very small metal and ceramic package.

The internal elements of tubes have always been connected to external circuitry via pins at their base which plug into a socket. Subminiature tubes were produced using wire leads rather than sockets, however these were restricted to rather specialized applications. In addition to the connections at the base of the tube, many early triodes connected the grid using a metal cap at the top of the tube; this reduces stray [capacitance](https://en.wikipedia.org/wiki/Capacitance) between the grid and the plate leads. Tube caps were also used for the plate (anode) connection, particularly in transmitting tubes and tubes using a very high plate voltage.

Some special-purpose tubes are constructed with particular gases in the envelope. For instance, [voltage-regulator tubes](https://en.wikipedia.org/wiki/Voltage-regulator_tube) contain various [inert gases](https://en.wikipedia.org/wiki/Inert_gas) such as [argon](https://en.wikipedia.org/wiki/Argon), [helium](https://en.wikipedia.org/wiki/Helium) or [neon](https://en.wikipedia.org/wiki/Neon), which will [ionize](https://en.wikipedia.org/wiki/Ionization) at predictable voltages. The [thyratron](https://en.wikipedia.org/wiki/Thyratron) is a special-purpose tube filled with low-pressure gas or mercury vapor. Like vacuum tubes, it contains a hot cathode and an anode, but also a control electrode which behaves somewhat like the grid of a triode. When the control electrode starts conduction, the gas ionizes, after which the control electrode can no longer stop the current; the tube "latches" into conduction. Removing anode (plate) voltage lets the gas de-ionize, restoring its non-conductive state.

Some thyratrons can carry large currents for their physical size. A cold-cathode version of the thyratron, which uses a pool of mercury for its cathode, is called an [ignitron](https://en.wikipedia.org/wiki/Ignitron); some can switch thousands of amperes. Thyratrons containing hydrogen have a very consistent time delay between their turn-on pulse and full conduction; they behave much like modern [silicon-controlled rectifiers](https://en.wikipedia.org/wiki/Silicon-controlled_rectifier), also called [thyristors](https://en.wikipedia.org/wiki/Thyristor) due to their functional similarity to thyratrons. Hydrogen thyratrons have long been used in radar transmitters.

An extremely specialized tube is the [krytron](https://en.wikipedia.org/wiki/Krytron), which is used for extremely precise and rapid high-voltage switching. Krytrons with certain specifications are suitable to initiate the precise sequence of detonations used to set off a [nuclear weapon](https://en.wikipedia.org/wiki/Nuclear_weapon), and are heavily controlled at an international level.

[X-ray tubes](https://en.wikipedia.org/wiki/X-ray_tube) are used in medical imaging among other uses. X-ray tubes used for continuous-duty operation in fluoroscopy and [CT imaging](https://en.wikipedia.org/wiki/X-ray_computed_tomography) equipment may use a focused cathode and a rotating anode to dissipate the large amounts of heat thereby generated. These are housed in an oil-filled aluminium housing to provide cooling.

The [photomultiplier](https://en.wikipedia.org/wiki/Photomultiplier) tube is an extremely sensitive detector of light, which uses the [photoelectric effect](https://en.wikipedia.org/wiki/Photoelectric_effect) and [secondary emission](https://en.wikipedia.org/wiki/Secondary_emission), rather than thermionic emission, to generate and amplify electrical signals. Nuclear medicine imaging equipment and [liquid scintillation counters](https://en.wikipedia.org/wiki/Liquid_scintillation_counting) use photomultiplier tube arrays to detect low-intensity [scintillation](https://en.wikipedia.org/wiki/Scintillation_counter) due to [ionizing radiation](https://en.wikipedia.org/wiki/Ionizing_radiation).

**Выполнение заданий по тексту.**

1.Выписать выражения, соответствующие следующим…

1. Tubes with grids can be used for many purposes, including
2. which create a beam of electrons for display purposes
3. [filament](https://en.wikipedia.org/wiki/Electrical_filament)
4. [sound reinforcement](https://en.wikipedia.org/wiki/Sound_reinforcement_system),
5. [amplification](https://en.wikipedia.org/wiki/Amplifier), [rectification](https://en.wikipedia.org/wiki/Rectifier), [switching](https://en.wikipedia.org/wiki/Electronic_switch), [oscillation](https://en.wikipedia.org/wiki/Electronic_oscillator),
6. external circuitry
7. special-purpose tubes
8. [voltage-regulator tubes](https://en.wikipedia.org/wiki/Voltage-regulator_tube) contain
9. which behaves somewhat like the grid of a triode.
10. Thyratrons containing hydrogen have a very consistent time delay
11. An extremely specialized tube is
12. are suitable to initiate the precise sequence of detonations
13. and are heavily controlled at an international level.
14. to dissipate the large amounts of heat thereby generated.
15. to generate and amplify electrical signals.
16. Трубки с решетками могут быть использованы в различных целях, включая
17. Что создает луч электронов выполняющих функции показа
18. нить волокно волосок
19. усиление звука
20. усиление, выпрямление, переключение, колебание,
21. внешняя схема
22. трубки специального назначения
23. трубки для контроля напряжения включают
24. который работает по тому же принципу что и триод
25. Тиратроны, содержащие водород, имеют очень последовательную временную задержку
26. Чрезвычайно специализированная трубка
27. подходят для запуска точной последовательности детонаций
28. строго контролируются на международном уровне
29. для рассеивания большого количества созданного при этом тепла
30. для создания и усиления электрических сигналов

2.Найдите окончания следующим выражениям…

1. Vacuum tubes mostly rely on [thermionic emission](https://en.wikipedia.org/wiki/Thermionic_emission) of electrons from a hot [filament](https://en.wikipedia.org/wiki/Electrical_filament) or a [cathode](https://en.wikipedia.org/wiki/Hot_cathode) heated by the filament.
2. as [cathode ray tubes](https://en.wikipedia.org/wiki/Cathode_ray_tube) which create a beam of electrons for display purposes
3. A vacuum tube consists of two or more [electrodes](https://en.wikipedia.org/wiki/Electrode) in a vacuum inside an airtight enclosure.
4. The electrodes are attached to leads which pass through the envelope via an airtight seal.
5. The heater is electrically isolated from the surrounding cathode and simply serves to heat the cathode sufficiently for [thermionic emission](https://en.wikipedia.org/wiki/Thermionic_emission) of electrons.
6. The electrical isolation allows all the tubes' heaters to be supplied from a common circuit
7. electron emission from the cathode depends on energy from [photons](https://en.wikipedia.org/wiki/Photon) rather than [thermionic emission](https://en.wikipedia.org/wiki/Thermionic_emission)
8. A positive voltage slightly lower than the plate (anode) voltage was applied to it, and was bypassed (for high frequencies) to ground with a capacitor.
9. The internal elements of tubes have always been connected to external circuitry via pins at their base which plug into a socket.
10. High-power tubes such as transmitting tubes have packages designed more to enhance heat transfer
11. . When the control electrode starts conduction, the gas ionizes, after which the control electrode can no longer stop the current;
12. The [thyratron](https://en.wikipedia.org/wiki/Thyratron) is a special-purpose tube filled with low-pressure gas or mercury vapor.
13. the [krytron](https://en.wikipedia.org/wiki/Krytron), which is used for extremely precise and rapid high-voltage switching.
14. X-ray tubes used for continuous-duty operation in fluoroscopy and [CT imaging](https://en.wikipedia.org/wiki/X-ray_computed_tomography)equipment
15. Vacuum tubes mostly rely on …….
16. [cathode ray tubes](https://en.wikipedia.org/wiki/Cathode_ray_tube)  create ….
17. A vacuum tube consists of ….
18. The electrodes are attached to …
19. The heater is electrically isolated from …..
20. The electrical isolation allows all the tubes' heaters ….
21. electron emission from the cathode depends …
22. A positive voltage slightly lower than …
23. The internal elements of tubes have always been connected to ….
24. High-power tubes such as transmitting tubes have packages designed more …
25. When the control electrode starts conduction…..
26. The [thyratron](https://en.wikipedia.org/wiki/Thyratron) is a special-purpose tube …
27. .[krytron](https://en.wikipedia.org/wiki/Krytron) is used for …
28. X-ray tubes are used for…

3. Напишите что сказано в тексте о…

1. Vacuum tube
2. Diode
3. Cathode ray tube
4. Coverage of a vacuum tube
5. Tetrode tube
6. The internal elements of tube
7. Thyratron
8. Krytron
9. x-ray tube
10. photomultiplier
11. In [electronics](https://en.wikipedia.org/wiki/Electronics), a **vacuum tube**, an **electron tube**, or just a **tube** , or **valve**  is a device that controls [electric current](https://en.wikipedia.org/wiki/Electric_current) between [electrodes](https://en.wikipedia.org/wiki/Electrode) in an [evacuated](https://en.wikipedia.org/wiki/Vacuum) container.
12. The simplest vacuum tube, the [diode](https://en.wikipedia.org/wiki/Diode), contains only a heater, a heated electron-emitting cathode, and a plate (anode).
13. [cathode ray tubes](https://en.wikipedia.org/wiki/Cathode_ray_tube) which create a beam of electrons for display purposes (such as the television picture tube) in addition to more specialized functions such as [electron microscopy](https://en.wikipedia.org/wiki/Electron_microscopy) and [electron beam lithography](https://en.wikipedia.org/wiki/Electron_beam_lithography). [X-ray tubes](https://en.wikipedia.org/wiki/X-ray_tube) are also vacuum
14. Most tubes have glass envelopes with a [glass-to-metal seal](https://en.wikipedia.org/wiki/Glass-to-metal_seal) based on [kovar](https://en.wikipedia.org/wiki/Kovar) sealable [borosilicate glasses](https://en.wikipedia.org/wiki/Borosilicate_glass), though ceramic and metal envelopes (atop insulating bases) have been used.
15. This two-grid tube is called a [*tetrode*](https://en.wikipedia.org/wiki/Tetrode), meaning four active electrodes, and was common by 1926.
16. Subminiature tubes were produced using wire leads rather than sockets, however these were restricted to rather specialized applications. In addition to the connections at the base of the tube, many early triodes connected the grid using a metal cap at the top of the tube; this reduces stray [capacitance](https://en.wikipedia.org/wiki/Capacitance) between the grid and the plate leads.
17. The [thyratron](https://en.wikipedia.org/wiki/Thyratron) is a special-purpose tube filled with low-pressure gas or mercury vapor. Like vacuum tubes, it contains a hot cathode and an anode, but also a control electrode which behaves somewhat like the grid of a triode.
18. An extremely specialized tube is the [krytron](https://en.wikipedia.org/wiki/Krytron), which is used for extremely precise and rapid high-voltage switching. Krytrons with certain specifications are suitable to initiate the precise sequence of detonations used to set off a [nuclear weapon](https://en.wikipedia.org/wiki/Nuclear_weapon), and are heavily controlled at an international level.
19. [X-ray tubes](https://en.wikipedia.org/wiki/X-ray_tube) are used in medical imaging among other uses. X-ray tubes used for continuous-duty operation in fluoroscopy and [CT imaging](https://en.wikipedia.org/wiki/X-ray_computed_tomography)
20. The [photomultiplier](https://en.wikipedia.org/wiki/Photomultiplier) tube is an extremely sensitive detector of light, which uses the [photoelectric effect](https://en.wikipedia.org/wiki/Photoelectric_effect) and [secondary emission](https://en.wikipedia.org/wiki/Secondary_emission), rather than thermionic emission, to generate and amplify electrical signals.

**Работа с текстом «Полупроводники».**

Задание. Прочитать первую часть текста, написать вопросы по содержанию текста в правильном порядке. Ответить на вопросы.

1. Can we say that resistance in semiconductors is inversely proportional to the temperature?
2. When is a semiconductor junction formed?
3. How can the conducting properties of semiconductors be changed?
4. What is the basis of a diode?
5. What does electrical conductivity value depend on?
6. When did the transistor and the integrated circuit appear?
7. What laws help us understand the properties of a semiconductor?
8. For what purpose do we use semiconductors?
9. When were people introduced to the first semiconductor device?
10. What materials are used for producing semiconductor devices?

1.What does electrical conductivity value depend on?

*A semiconductor material has an*[*electrical conductivity*](https://en.wikipedia.org/wiki/Electrical_conductivity)*value falling between that of a*[*conductor*](https://en.wikipedia.org/wiki/Electrical_resistivity_and_conductivity)*, such as copper, and an*[*insulator*](https://en.wikipedia.org/wiki/Insulator_(electrical))*, such as glass.*

2.Can we say that conductivity in semiconductors is inversely proportional to the temperature?

*No, their*[*resistance*](https://en.wikipedia.org/wiki/Electrical_resistance)*decreases as their temperature increases.*

3.How can the conducting properties of semiconductors be changed?

*Their conducting properties may be altered in useful ways by the deliberate, controlled introduction of impurities ("*[*doping*](https://en.wikipedia.org/wiki/Doping_(semiconductor))*") into the*[*crystal structure*](https://en.wikipedia.org/wiki/Crystal_structure)*.*

4.Where is a semiconductor junction formed?

*Where two differently-doped regions exist in the same crystal, a*[*semiconductor junction*](https://en.wikipedia.org/wiki/Semiconductor_junction)*is created.*

5. What is the basis of a diode?

*The behavior of*[*charge carriers*](https://en.wikipedia.org/wiki/Charge_carrier) *which include*[*electrons*](https://en.wikipedia.org/wiki/Electron)*,*[*ions*](https://en.wikipedia.org/wiki/Ion)*and*[*electron holes*](https://en.wikipedia.org/wiki/Electron_hole)*at these junctions is the basis of*[*diodes*](https://en.wikipedia.org/wiki/Diode)*,*[*transistors*](https://en.wikipedia.org/wiki/Transistor)*and all modern electronics.*

6.For what purpose do we use semiconductors?

*Devices made from semiconductors can be used for amplification, switching, and*[*energy conversion*](https://en.wikipedia.org/wiki/Energy_conversion)*.*

7.What laws help us understand the properties of a semiconductor?

*The modern understanding of the properties of a semiconductor relies on*[*quantum physics*](https://en.wikipedia.org/wiki/Quantum_physics)*to explain the movement of charge carriers in a*[*crystal lattice*](https://en.wikipedia.org/wiki/Crystal_structure)*.*

8.What materials are used for producing semiconductor devices?

[*Silicon*](https://en.wikipedia.org/wiki/Silicon)*,*[*germanium*](https://en.wikipedia.org/wiki/Germanium)*, and compounds of*[*gallium*](https://en.wikipedia.org/wiki/Gallium)*are the most widely used in electronic devices.*

9.When were people introduced to the first semiconductor device?

*The first practical application of semiconductors in electronics was the 1904 development of the*[*Cat's-whisker detector*](https://en.wikipedia.org/wiki/Cat%27s-whisker_detector), *a primitive semiconductor diode widely used in early radio receivers.*

10.When did the transistor and the integrated circuit appear?

*Developments in quantum physics in turn allowed the development of the*[*transistor*](https://en.wikipedia.org/wiki/Transistor)*in 1947 and the*[*integrated circuit*](https://en.wikipedia.org/wiki/Integrated_circuit)*in 1958.*

A **semiconductor** material has an [electrical conductivity](https://en.wikipedia.org/wiki/Electrical_conductivity) value falling between that of a [conductor](https://en.wikipedia.org/wiki/Electrical_resistivity_and_conductivity), such as copper, and an [insulator](https://en.wikipedia.org/wiki/Insulator_(electrical)), such as glass. Their [resistance](https://en.wikipedia.org/wiki/Electrical_resistance) decreases as their temperature increases, which is behavior opposite to that of a metal. Their conducting properties may be altered in useful ways by the deliberate, controlled introduction of impurities ("[doping](https://en.wikipedia.org/wiki/Doping_(semiconductor))") into the [crystal structure](https://en.wikipedia.org/wiki/Crystal_structure). Where two differently-doped regions exist in the same crystal, a [semiconductor junction](https://en.wikipedia.org/wiki/Semiconductor_junction) is created. The behavior of [charge carriers](https://en.wikipedia.org/wiki/Charge_carrier) which include [electrons](https://en.wikipedia.org/wiki/Electron), [ions](https://en.wikipedia.org/wiki/Ion) and [electron holes](https://en.wikipedia.org/wiki/Electron_hole) at these junctions is the basis of [diodes](https://en.wikipedia.org/wiki/Diode), [transistors](https://en.wikipedia.org/wiki/Transistor) and all modern electronics.

[Semiconductor devices](https://en.wikipedia.org/wiki/Semiconductor_device) can display a range of useful properties such as passing current more easily in one direction than the other, showing variable resistance, and sensitivity to light or heat. Because the electrical properties of a semiconductor material can be modified by doping, or by the application of electrical fields or light, devices made from semiconductors can be used for amplification, switching, and [energy conversion](https://en.wikipedia.org/wiki/Energy_conversion).

The modern understanding of the properties of a semiconductor relies on [quantum physics](https://en.wikipedia.org/wiki/Quantum_physics) to explain the movement of charge carriers in a [crystal lattice](https://en.wikipedia.org/wiki/Crystal_structure). Doping greatly increases the number of charge carriers within the crystal. When a doped semiconductor contains mostly free holes it is called "[p-type](https://en.wikipedia.org/wiki/Extrinsic_semiconductor#P-type_semiconductors)", and when it contains mostly free electrons it is known as "[n-type](https://en.wikipedia.org/wiki/Extrinsic_semiconductor#N-type_semiconductors)". The semiconductor materials used in electronic devices are doped under precise conditions to control the concentration and regions of p- and n-type dopants. A single semiconductor crystal can have many p- and n-type regions; the [p–n junctions](https://en.wikipedia.org/wiki/P%E2%80%93n_junction) between these regions are responsible for the useful electronic behavior.

Although some pure elements and many compounds display semiconductor properties, [silicon](https://en.wikipedia.org/wiki/Silicon), [germanium](https://en.wikipedia.org/wiki/Germanium), and compounds of [gallium](https://en.wikipedia.org/wiki/Gallium) are the most widely used in electronic devices. Elements near the so-called "[metalloid staircase](https://en.wikipedia.org/wiki/Metalloid_staircase)", where the metalloids are located on the periodic table, are usually used as semiconductors.

Some of the properties of semiconductor materials were observed throughout the mid 19th and first decades of the 20th century. The first practical application of semiconductors in electronics was the 1904 development of the [Cat's-whisker detector](https://en.wikipedia.org/wiki/Cat%27s-whisker_detector), a primitive semiconductor diode widely used in early radio receivers. Developments in quantum physics in turn allowed the development of the [transistor](https://en.wikipedia.org/wiki/Transistor) in 1947 and the [integrated circuit](https://en.wikipedia.org/wiki/Integrated_circuit) in 1958.

Задание. Прочитать и перевести вторую часть текста

Составить десять предложений по содержанию теста со следующими глаголами.

*To involve/ to be found/ to behave/ to be used/ to be required/ to interfere/ to achieve/ to be grown/ to prepare/ to be called/ to form/ to create/ to generate/ to be covered/ to be etched/ to be located/ to cause/ to be hit/ to be released/ to introduce/ to be injected/ to be completed/ to reach/ to be done*

**Preparation of semiconductor materials**

Almost all of today's electronic technology involves the use of semiconductors, with the most important aspect being the [integrated circuit](https://en.wikipedia.org/wiki/Integrated_circuit) (IC), which are found in [laptops](https://en.wikipedia.org/wiki/Laptop_computer), scanners, [cell-phones](https://en.wikipedia.org/wiki/Cell-phone), etc. Semiconductors for ICs are mass-produced. To create an ideal semiconducting material, chemical purity is paramount. Any small imperfection can have a drastic effect on how the semiconducting material behaves due to the scale at which the materials are used. A high degree of crystalline perfection is also required, since faults in crystal structure (such as [dislocations](https://en.wikipedia.org/wiki/Dislocation), [twins](https://en.wikipedia.org/wiki/Crystal_twinning), and [stacking faults](https://en.wikipedia.org/wiki/Crystallographic_defect#Planar_defects)) interfere with the semiconducting properties of the material. Crystalline faults are a major cause of defective semiconductor devices. The larger the crystal, the more difficult it is to achieve the necessary perfection. Current mass production processes use crystal [ingots](https://en.wikipedia.org/wiki/Ingot) between 100 and 300 mm (4 and 12 in) in diameter which are grown as cylinders and sliced into [wafers](https://en.wikipedia.org/wiki/Wafer_(electronics)).

There is a combination of processes that is used to prepare semiconducting materials for ICs. One process is called [thermal oxidation](https://en.wikipedia.org/wiki/Thermal_oxidation), which forms [silicon dioxide](https://en.wikipedia.org/wiki/Silicon_dioxide) on the surface of the [silicon](https://en.wikipedia.org/wiki/Silicon). This is used as a [gate insulator](https://en.wikipedia.org/wiki/Gate_dielectric) and [field oxide](https://en.wikipedia.org/wiki/LOCOS). Other processes are called [photomasks](https://en.wikipedia.org/wiki/Photomask) and [photolithography](https://en.wikipedia.org/wiki/Photolithography). This process is what creates the patterns on the circuity in the integrated circuit. [Ultraviolet light](https://en.wikipedia.org/wiki/Ultraviolet_light) is used along with a [photoresist](https://en.wikipedia.org/wiki/Photoresist) layer to create a chemical change that generates the patterns for the circuit. Etching is the next process that is required. The part of the silicon that was not covered by the [photoresist](https://en.wikipedia.org/wiki/Photoresist) layer from the previous step can now be etched. The main process typically used today is called [plasma etching](https://en.wikipedia.org/wiki/Plasma_etching). Plasma etching usually involves an [etch gas](https://en.wikipedia.org/wiki/Plasma_etching) pumped in a low-pressure chamber to create [plasma](https://en.wikipedia.org/wiki/Plasma_(physics)). A common etch gas is [chlorofluorocarbon](https://en.wikipedia.org/wiki/Chlorofluorocarbon), or more commonly known [Freon](https://en.wikipedia.org/wiki/Freon). A high [radio-frequency](https://en.wikipedia.org/wiki/Radio-frequency) [voltage](https://en.wikipedia.org/wiki/Voltage) between the [cathode](https://en.wikipedia.org/wiki/Cathode) and [anode](https://en.wikipedia.org/wiki/Anode) is what creates the plasma in the chamber. The [silicon wafer](https://en.wikipedia.org/wiki/Wafer_(electronics)) is located on the cathode, which causes it to be hit by the positively charged ions that are released from the plasma. The end result is silicon that is etched [anisotropically](https://en.wikipedia.org/wiki/Anisotropy). The last process is called [diffusion](https://en.wikipedia.org/wiki/Doping_(semiconductor)). This is the process that gives the semiconducting material its desired semiconducting properties. It is also known as [doping](https://en.wikipedia.org/wiki/Doping_(semiconductor)). The process introduces an impure atom to the system, which creates the [p-n junction](https://en.wikipedia.org/wiki/P-n_junction). In order to get the impure atoms embedded in the silicon wafer, the wafer is first put in a 1100 degree Celsius chamber. The atoms are injected in and eventually diffuse with the silicon. After the process is completed and the silicon has reached room temperature, the doping process is done and the semiconducting material is ready to be used in an integrated circuit.

**Работа с темой « Проводник».**

1. Знакомство с новой лексикой

To collide -сталкиваться

Fuel cell- топливный элемент

Cross-sectional area-площадь поперечного сечения

Reciprocal- взаимный · двусторонний · ответный · общий

Efficacy- эффективность

Lattice vibration- решетка, сетка

Pinball machine- игровойавтомат

To disrupt - нарушитьthe

To scatter- разбрасывать

Annealed copper-обожженнаямедь

Grade of copper-рангмеди

Motor winding-обмоткадвигателя

Busbar-шина

Tough-pitchcopper-жесткая красная медь

ASTM-American Society for Testing and Materials

To weld-варить

To braze-спаивать

Oxygen-freehighconductivity-бескислородная высокая проводимость

To solder-паять

Soldering-пайка

To clamp-зажимать

Clamping -зажим

Light-gauge wire-световойпроводдатчика

Thin plating-тонкоепокрытие

To mitigate skin effect-уменьшатьвоздействиенакожу

To creep-ползти

To accelerate the loosening of connections-ускорятьослаблениесоединений

Buriedcable-подземный кабель

Servicedrop-самонесущий изолированный провод низкого напряжения

Compatible connector-совместимыйразъем

Circular mile-круговаямиля

Allowableampacity-допустимая токовая нагрузка

Fuse -предохранитель

PVCinsulation-PolyvinilCloride-поливинилохлоридный изолятор

Inducedelectriccurrent- Индуцированный электрический ток

**2. Чтение и перевод текста.**

In [physics](https://en.wikipedia.org/wiki/Physics) and [electrical engineering](https://en.wikipedia.org/wiki/Electrical_engineering), a **conductor** is an object or type of material that allows the flow of an [electrical current](https://en.wikipedia.org/wiki/Electrical_current) in one or more directions. Materials made of metal are common electrical conductors. Electrical current is generated by the flow of negatively charged electrons, positively charged holes, and positive or negative ions in some cases.

Metal is an ideal choice for a conductor as metals, characteristically, possess a delocalized [sea of electrons](https://en.wikipedia.org/wiki/Sea_of_electrons) which gives the electrons enough mobility to collide and thus effect a momentum transfer.

As discussed above, electrons are the primary mover in metals; however, other devices such as the cationic [electrolyte](https://en.wikipedia.org/wiki/Electrolyte)(s) of a [battery](https://en.wikipedia.org/wiki/Battery_(electricity)), or the mobile protons of the [proton conductor](https://en.wikipedia.org/wiki/Proton_conductor) of a fuel cell rely on positive charge carriers.

The resistance of a given conductor depends on the material it is made of, and on its dimensions. For a given material, the resistance is inversely proportional to the cross-sectional area. For example, a thick copper wire has lower resistance than an otherwise-identical thin copper wire. Also, for a given material, the resistance is proportional to the length; for example, a long copper wire has higher resistance than an otherwise-identical short copper wire.

Aside from the geometry of the wire, temperature also has a significant effect on the efficacy of conductors. Temperature affects conductors in two main ways, the first is that materials may expand under the application of heat. The amount that the material will expand is governed by the [thermal expansion coefficient](https://en.wikipedia.org/wiki/Thermal_expansion_coefficient) specific to the material. Such an expansion (or contraction) will change the geometry of the conductor and therefore its characteristic resistance. However, this effect is generally small, on the order of 10−6. An increase in temperature will also increase the number of phonons generated within the material. A [phonon](https://en.wikipedia.org/wiki/Phonon) is essentially a lattice vibration, or rather a small, harmonic kinetic movement of the atoms of the material. Much like the shaking of a pinball machine, phonons serve to disrupt the path of electrons, causing them to scatter. This electron scattering will decrease the number of electron collisions and therefore will decrease the total amount of current transferred.

**Conduction materials**

include [metals](https://en.wikipedia.org/wiki/Metal), [electrolytes](https://en.wikipedia.org/wiki/Electrolyte), [superconductors](https://en.wikipedia.org/wiki/Superconductor),[semiconductors](https://en.wikipedia.org/wiki/Semiconductor), [plasmas](https://en.wikipedia.org/wiki/Plasma_(physics)) and some nonmetallic conductors such as[graphite](https://en.wikipedia.org/wiki/Graphite) and [Conductive polymers](https://en.wikipedia.org/wiki/Conductive_polymer).

[Copper](https://en.wikipedia.org/wiki/Copper) has a high [conductivity](https://en.wikipedia.org/wiki/Electrical_conductivity). [Annealed](https://en.wikipedia.org/wiki/Annealing_(metallurgy)) copper is the international standard to which all other electrical conductors are compared. The main grade of copper used for electrical applications, such as building wire, [motor](https://en.wikipedia.org/wiki/Electric_motor) windings, cables and [busbars](https://en.wikipedia.org/wiki/Busbar), is [electrolytic-tough pitch (ETP) copper](https://en.wikipedia.org/wiki/Oxygen-free_copper#Specification) (CW004A or [ASTM](https://en.wikipedia.org/wiki/ASTM) designation C100140). This copper has an electrical conductivity of at least 100% IACS (International Annealed Copper Standard). If high conductivity copper must be [welded](https://en.wikipedia.org/wiki/Welding) or [brazed](https://en.wikipedia.org/wiki/Brazing) or used in a reducing atmosphere, then [oxygen-free high conductivity copper](https://en.wikipedia.org/wiki/Oxygen-free_copper) (CW008A or ASTM designation C10100) may be used.[]](https://en.wikipedia.org/wiki/Electrical_conductor#cite_note-2)Because of its ease of connection by [soldering](https://en.wikipedia.org/wiki/Soldering) or clamping, copper is still the most common choice for most light-gauge wires.

[Silver](https://en.wikipedia.org/wiki/Silver) is more 'conductive' than copper, but due to cost it is not practical in most cases. However, it is used in specialized equipment, such as [satellites](https://en.wikipedia.org/wiki/Satellite), and as a thin plating to mitigate [skin effect](https://en.wikipedia.org/wiki/Skin_effect) losses at high frequencies.

[Aluminum](https://en.wikipedia.org/wiki/Aluminum) wire, which has 61% of the conductivity of copper, has been used in building wiring for its lower cost. By weight, aluminum has higher conductivity than copper, but it has properties that cause problems when used for building wiring. It can form a resistive oxide within connections that makes wiring terminals heat. Aluminum can "creep", slowly deforming under load, eventually causing device connections to loosen, and also has a different [coefficient of thermal expansion](https://en.wikipedia.org/wiki/Coefficient_of_thermal_expansion) compared to materials used for connections. This accelerates the loosening of connections. These effects can be minimized by using wiring devices approved for use with aluminum.

Aluminum wires used for low voltage distribution, such as buried cables and service drops, require use of compatible connectors and installation methods to prevent heating at joints. Aluminum is also the most common metal used in high-voltage transmission lines, in combination with steel as structural reinforcement. [Anodized aluminum](https://en.wikipedia.org/wiki/Anodizing) surfaces are not conductive. This affects the design of electrical enclosures that require the enclosure to be electrically connected.

While pure [water](https://en.wikipedia.org/wiki/Water) is not an electrical conductor, even a small portion of impurities, such as [salt](https://en.wikipedia.org/wiki/Salt), can rapidly transform it into a conductor.

**Wire size**

Wires are measured by their cross sectional area. In many countries, the size is expressed in square millimetres. In North America, conductors are measured by [American wire gauge](https://en.wikipedia.org/wiki/American_wire_gauge) for smaller ones, and [circular mils](https://en.wikipedia.org/wiki/Circular_mils) for larger ones. The size of a wire contributes to its ampacity. The [American wire gauge](https://en.wikipedia.org/wiki/American_wire_gauge) article contains a table showing allowable ampacities for a variety of copper wire sizes.

**Conductor ampacity**

The [ampacity](https://en.wikipedia.org/wiki/Ampacity) of a conductor, that is, the amount of [current](https://en.wikipedia.org/wiki/Electric_current) it can carry, is related to its electrical resistance: a lower-resistance conductor can carry a larger value of current. The resistance, in turn, is determined by the material the conductor is made from (as described above) and the conductor's size. For a given material, conductors with a larger cross-sectional area have less resistance than conductors with a smaller cross-sectional area.

For bare conductors, the ultimate limit is the point at which power lost to resistance causes the conductor to melt. Aside from [fuses](https://en.wikipedia.org/wiki/Fuse_(electrical)), most conductors in the real world are operated far below this limit, however. For example, household wiring is usually insulated with [PVC](https://en.wikipedia.org/wiki/Polyvinyl_chloride) insulation that is only rated to operate to about 60 °C, therefore, the current in such wires must be limited so that it never heats the copper conductor above 60 °C, causing a risk of [fire](https://en.wikipedia.org/wiki/Fire). Other, more expensive insulation such as [Teflon](https://en.wikipedia.org/wiki/Teflon) or [fiberglass](https://en.wikipedia.org/wiki/Fiberglass) may allow operation at much higher temperatures.

**Isotropy**

If an [electric field](https://en.wikipedia.org/wiki/Electric_field) is applied to a material, and the resulting induced [electric current](https://en.wikipedia.org/wiki/Electric_current) is in the same direction, the material is said to be an *isotropic electrical conductor*. If the resulting electric current is in a different direction from the applied electric field, the material is said to be an *anisotropic electrical conductor*.

**3.Составление конспекта текста на английском языке (15 предложений)**

1. In [physics](https://en.wikipedia.org/wiki/Physics) and [electrical engineering](https://en.wikipedia.org/wiki/Electrical_engineering), a **conductor** is an object or type of material that allows the flow of an [electrical current](https://en.wikipedia.org/wiki/Electrical_current) in one or more directions.
2. Metal is an ideal choice for a conductor as it possesses a delocalized [sea of electrons](https://en.wikipedia.org/wiki/Sea_of_electrons) which gives the electrons enough mobility to collide and thus effect a momentum transfer.
3. The resistance of a given conductor depends on the material it is made of, and on its dimensions.
4. For a given material, the resistance is inversely proportional to the cross-sectional area.
5. Temperature also affects conductors in two main ways, the first is that materials may expand under the application of heat. An increase in temperature will also increase the number of phonons generated within the material.
6. Much like the shaking of a pinball machine, phonons serve to disrupt the path of electrons, causing them to scatter which decreases the number of electron collisions and therefore the total amount of current transferred.
7. **Conduction materials**
8. include [metals](https://en.wikipedia.org/wiki/Metal), [electrolytes](https://en.wikipedia.org/wiki/Electrolyte), [superconductors](https://en.wikipedia.org/wiki/Superconductor),[semiconductors](https://en.wikipedia.org/wiki/Semiconductor), [plasmas](https://en.wikipedia.org/wiki/Plasma_(physics)) and some nonmetallic conductors such as[graphite](https://en.wikipedia.org/wiki/Graphite) and [Conductive polymers](https://en.wikipedia.org/wiki/Conductive_polymer).
9. Many types of [Copper](https://en.wikipedia.org/wiki/Copper) have a high [conductivity](https://en.wikipedia.org/wiki/Electrical_conductivity).
10. [Annealed](https://en.wikipedia.org/wiki/Annealing_(metallurgy)) copper is used in producing building wire, [motor](https://en.wikipedia.org/wiki/Electric_motor) windings, cables and [busbars](https://en.wikipedia.org/wiki/Busbar),
11. Because of its ease of connection by [soldering](https://en.wikipedia.org/wiki/Soldering) or clamping, copper is still the most common choice for most light-gauge wires.
12. [Aluminum](https://en.wikipedia.org/wiki/Aluminum) wire, which has 61% of the conductivity of copper, has been used in building wiring for its lower cost.
13. Aluminum wires used for low voltage distribution, such as buried cables and service drops.
14. Aluminum is also the most common metal used in high-voltage transmission lines, in combination with steel as structural reinforcement.
15. Wires are measured by their cross sectional area. In many countries, the size is expressed in square millimetres.
16. The [ampacity](https://en.wikipedia.org/wiki/Ampacity) of a conductor, that is, the amount of [current](https://en.wikipedia.org/wiki/Electric_current) it can carry, is related to its electrical resistance: a lower-resistance conductor can carry a larger value of current.

**Работастекстом «The Rise Of The Machines.The changing face of our motorized world»**

1. ***Read and translate this newspaper article about changing the world.***
2. Cars have given us freedom. We can go wherever we want, whenever we want to go. They have also given us independence. We don’t have to compromise or consider where other people wish to travel. Cars provide us with a personalized, door-to-door transport solution that’s always available. But they also change the world we live in.
3. If you had to consider the impact of cars on your town, first of all you would probably think of traffic jams and the difficulty of getting about in a car in the rush hour. Or maybe you would think of pollution, and how the toxic fumes erode the facades of buildings along busy thoroughfares. But there is a much bigger change we almost never think about. Cars change the face of the towns themselves.
4. As people buy more and more cars, roads keep getting widened to accommodate the increasing number of traffic. They encroach upon formerly green spaces: lawns, flowerbeds, or trees that used to line the roads. They expand until the pavements become a thin strip along the foot of the buildings, further narrowed by the parked cars that invade the last remaining inches of pedestrian space.
5. We all enjoy the facilities that shopping malls, multiplex cinemas and enormous entertainment complexes bring- because we can use our cars to get to them. They are efficient, convenient and fast. At the same time, we are saddened by the loss of our local groceries, our beautiful Art Deco picture- houses and the friendly neighborhood community centers. What we must also realize is that these changes go hand in hand, and we are to blame.
6. Preferring our freedom to sharing transport with others, we get into our cars to get to our workplaces, to do our shopping, to go out to the theatre, and many would even drive to go for a walk in the fields. And wherever we drive to, we have to park, too. Parking spaces are huge areas of land used by empty cars waiting for hours on end for their passengers to return. What used to be a vast grassy meadow now becomes a small muddy field (criss-crossed by the tire -tracks of vehicles that use the field to take a shortcut out of the parking lot) fringed by a square of concrete and tar. And what cars have changed will never be like it used to be, ever again.

***2. Match the sentence beginnings 1-6 with the endings a-g so they express the main ideas in the text. There is one extra ending.***

1. Among the effects of using cars, we usually

2. The reason we find shopping and entertainment centers convenient is that we can

3. Older shops and services in towns

4. Cars have enabled us to

5. Even outside the cities, green spaces are beginning to

6. Streets in our towns

1. drive to them
2. change to provide more room for motor vehicles
3. close down because the new facilities take their place
4. travel freely and independently of others where we like
5. realize that the effects of increasing car ownership are irreversible
6. regard traffic congestion and pollution as the most important
7. be replaced by parking lots for cars

**Ответы.1f 2a 3c 4d 5g 6b**

***3. Now match the sentences above to the paragraph (A-F) in the text which contains information about them.***

**Ответы. A4 B1 C6 D2/3 E5**

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