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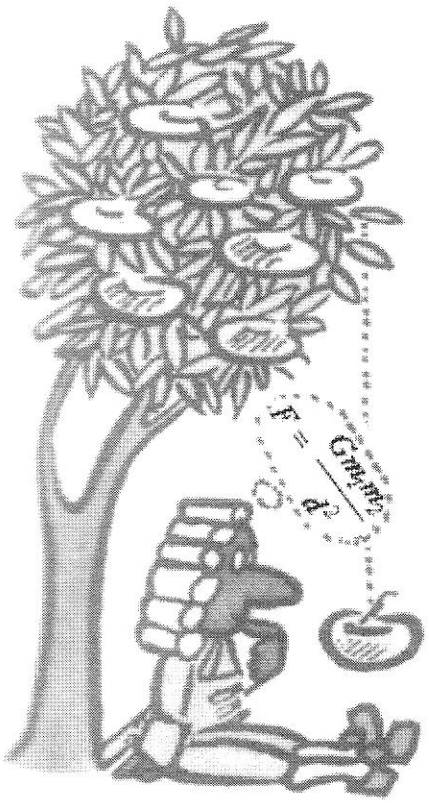
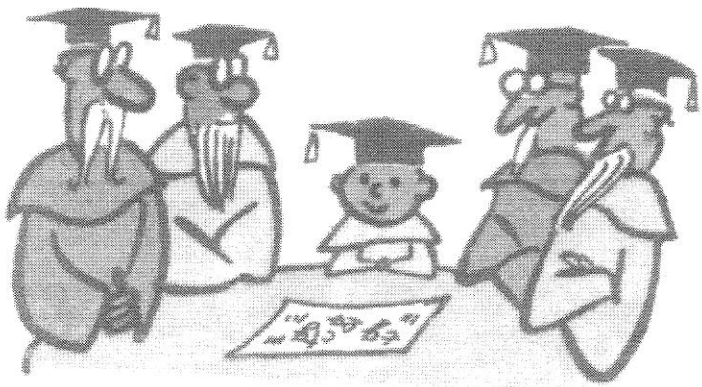
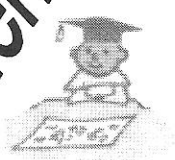


E. V. GULBINSKAYA

Physics Adventure



Student's Book



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Рецензенты:

канд. физ.-мат. наук, доцент **В.Ф. Нявро**
канд. пед. наук, доцент **О.А. Обдалова**

Автор:
Е.В. Гульбинская

Учебно-методическое пособие по английскому языку *"Physics Adventure"* включает в себя «Книгу для студента» (*"Student's Book"*) и «Книгу для преподавателя» (*"Teacher's Book"*).

Целью настоящего пособия является подготовка будущих специалистов к чтению оригинальной научно-технической литературы и ведению дискуссий по специальности. Содержание и характер пособия направлены на развитие у студентов навыков и умений различных видов чтения (изучающего, ознакомительного и т.д.), перевода текстов по специальности, аудирования, устной и письменной речи, на расширение словарного запаса студентов за счет специальной лексики с ее последующим использованием в практике повседневного общения.

Настоящее пособие (*"Student's Book"*) состоит из 7 уроков и приложений. Каждый урок включает вокабуляр, текст на английском языке, посвященный определенному разделу физики, схемы, отражающие содержание текста, предтекстовые и послетекстовые упражнения. К основным урокам прилагаются дополнительные тексты, лексика для обсуждения научных статей и написания докладов, справочный материал специального назначения, глоссарий.

Оригинально поданный материал в сочетании с большим количеством занимательного материала (забавных физических экспериментов, шуток, кроссвордов, ребусов, познавательной информации, игр) может увлечь любого студента и опровергает точку зрения, что изучать тексты по специальности скучно, трудно и неинтересно.

Данное пособие рекомендуется использовать в комплексе с *'English Grammar: Reference and Practice Book for Science Students'.*

Пособие предназначено для студентов-бакалавров I – II курсов физических факультетов.

Serious scientific work is by no means incompatible with humour and a zest for life.
B.M. Pontecorvo

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SYMBOLS AND ABBREVIATIONS

a key indicates that there is an answer to this exercise in the 'Key Section' (in the 'Teacher's Book')

Symbols used in the vocabulary and in the definitions

a globe indicates international words

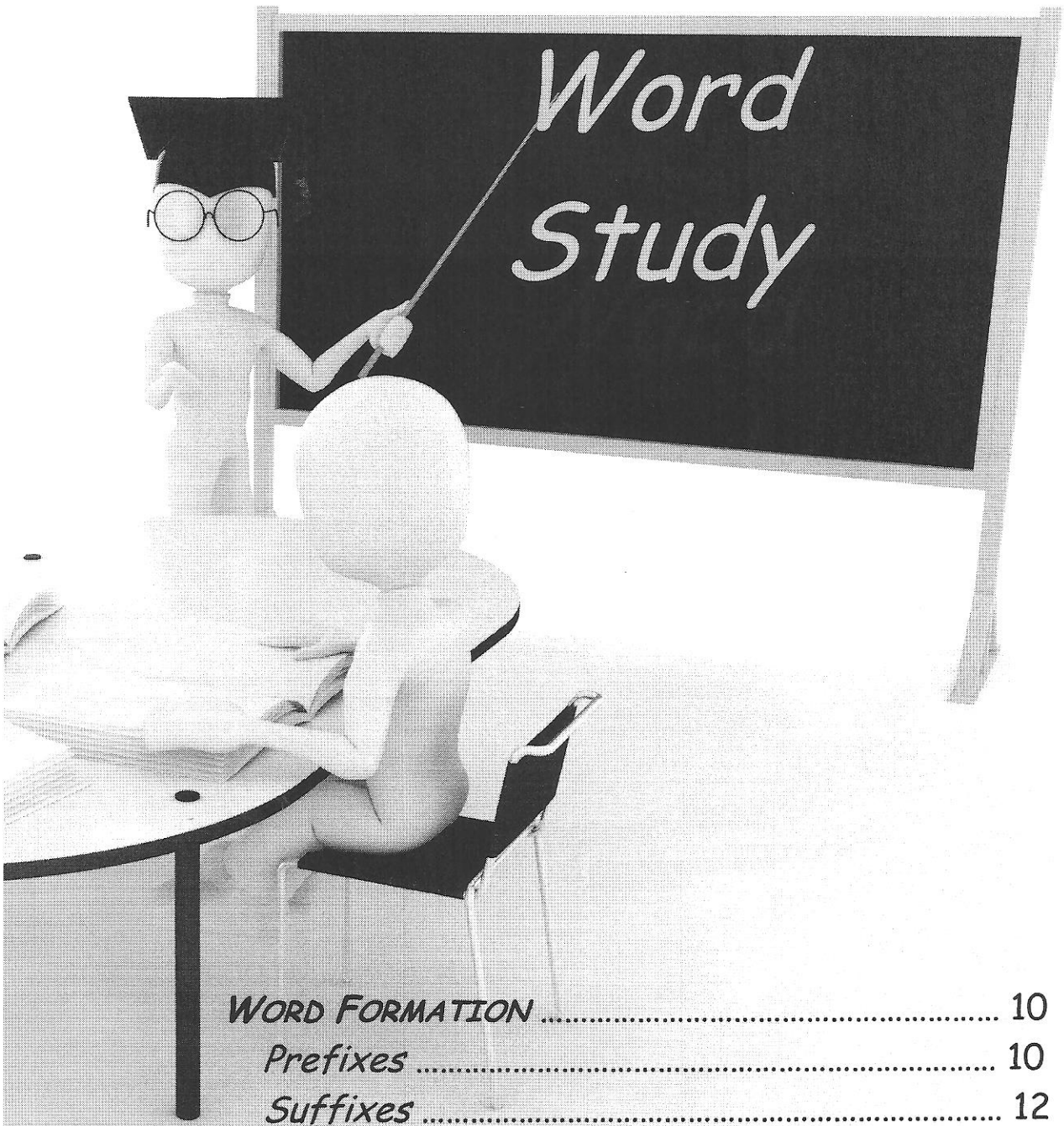
(↓) a downward pointing arrow indicates that the term is defined later in the same set of definitions (in the same unit)

(↑) an upward pointing arrow indicates that the term is defined earlier in the same set of definitions (in the same unit)

(→) an arrow pointing sideways is a cross-reference to a term in a different set of definitions (in another unit)

Abbreviations used in the vocabulary and in the definitions

a – an adjective
adv – an adverb
cj – a conjunction
n – a noun
pl – the plural form of a noun when it does not follow the general rules,
e.g. **spectrum** (*pl* **spectra**) or (*pl* **-ra**)
prep – a preposition
pron – a pronoun
v – a verb



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WORD FORMATION

PREFIXES

NEGATIVE PREFIXES

PREFIX	MEANING / ADDED TO	EXAMPLES		COMMENT
a- *can be translated as:* а- не-	'not' 'lack of' *can be added to:* nouns adjectives	symmetry симметрия typical типичный	**a**symmetry **а**симметрия **a**typical **не**типичный	
anti- *can be translated as:* анти- противо-	'opposite in position' 'opposite in effect' 'acting against' *can be added to:* nouns, adjectives	clockwise по часовой стрелке	**anti**clockwise против часовой стрелки	*some terms use a hyphen, e.g.* anti-proton
de- *can be translated as:* де- раз(с)-	'the opposite of' 'to reverse an action' 'to remove' *can be added to:* abstract nouns derived from verbs, adjectives	composition соединение naturalize натурализовать	**de**composition **раз**ъединение (разложение) **de**naturalize **де**натурализовать	
dis- *can be translated as:* не- без(с)- раз(с)-	'the opposite of' 'not' 'to reverse an action' 'to remove' *can be added to:* verbs, participles, nouns	charge заряд / заряжать charging charged close закрыть	**dis**charge **раз**ряд / **раз**ряжать **dis**charging **dis**charged **dis**close **рас**крыть	
in- **im- /il- /ir-** *can be translated as:* не- без(с)-	'the opposite of' 'not' 'lack of' *can be added to:* adjectives nouns	accuracy точность possible возможный legal законный responsible ответственный	**in**accuracy **не**точность **im**possible **не**возможный **il**legal **не**законный **ir**responsible **без**ответственный	**in-** *usually changes to:* **im-** *before* **m/b/p** **il-** *before* **l** **ir-** *before* **r**
non- *can be translated as:* не- без(с)-	'not' *can be added to:* adjectives nouns	conductor проводник rigid жесткий, твердый	**non**conductor **не**проводник (изолятор) **non**-rigid **не**жесткий, **не**твердый (мягкий, эластичный)	*some terms use a hyphen, e.g.* non-rigid
mis- *can be translated as:* неверн|ый/-о, ложн|ый/-о, *etc.*	'bad' / 'wrong' 'not' *can be added to:* verbs, nouns	understand понимать count счет, подсчет	**mis**understand **неверно** понять **mis**count **неправильный** подсчет; **про**счет	
un- *can be translated as:* не- без(с)- раз(с)-	'the opposite of' 'not' *can be added to:* adjectives **-ed** or **–ing** participles	important важный comfortable удобный limited ограниченный	**un**important **не**важный **un**comfortable **не**удобный **un**limited **без**граничный	

OTHER PREFIXES

PREFIX	MEANING / ADDED TO	EXAMPLES		COMMENT
co- *can be translated as:* со- взаимо-	'together / with' *can be added to:* nouns verbs participle	relation отношение, связь related	**co**rrelation **со**отношение, **взаимосвязь** **co**rrelated	*some terms use a hyphen, e.g.* co-author
en- **em-**	*makes verbs* 'to make /cause to be' *can be added to:* adjectives, nouns	large большой	**en**large увеличивать	**en-** *usually changes to:* **em-** *before* **m/b/p**
inter- *can be translated as:* меж(ду)- среди- взаимо- пере-	'between / among' 'from one to another' *can be added to:* nouns adjectives verbs participles	national народный, национальный action действие related связанный	**inter**national **между**народный, **меж**национальный **inter**action **взаимо**действие **inter**related **взаимо**связанный	
over- *can be translated as:* сверх- пере- над- чрезмерно	'too much' *can be added to:* verbs adjectives	active активный lap охватывать	**over**-active **сверх**активный **over**lap **пере**крывать, выходить за пределы	
pre- *can be translated as:* до- пред- предварительно заранее	'before' *can be added to:* nouns adjectives participles	historic исторический heated нагретый	**pre**historic **до**исторический **pre**heated **предварительно** нагретый	
pseudo(o)- *can be translated as:* псевдо- ложно- (лже-)	'not real' 'false' *can be added to:* nouns adjectives	science наука	**pseudo**science **лже**наука	
re- *can be translated as:* пере- снова, заново, еще раз	'again' *can be added to:* verbs	make делать write писать collect собирать	**re**make **пере**делать **re**write **пере**писать **re**collect **снова** собирать	*some terms use a hyphen, e.g.* re-educate
sub- *can be translated as:* под- суб-	'under' 'a smaller part of' 'less than' *can be added to:* nouns, adjectives, verbs	system система division (раз)деление	**sub**system **под**система **sub**division **под**разделение	
super- *can be translated as:* сверх- над- пере-	'greater *or* more than' *can be added to:* nouns adjectives verbs	heat тепло conductive проводимый	**super**heat **пере**грев **super**conductive **сверх**проводимый	
ultra- *can be translated as:* ультра-	'extreme', 'beyond' *can be added to:* adjectives, nouns	violet фиолетовый	**ultra**violet **ультра**фиолетовый	*some terms use a hyphen* ultra-modern

SUFFIXES

SUFFIXES FOR NOUNS

SUFFIX	MEANING / ADDED TO	EXAMPLES	
-age	'an act *or* an action of' 'a place *or* thing for' *can be added to:* nouns, adjectives, verbs	break ломать pass проходить	break**age** (*an action of breaking* or *a broken place or part*) поломка pass**age** (*an action of going* or *a narrow way through*) прохождение; проход
-ance / **-ancy** **-ence /** **-ency**	'the quality *or* state of (being)' 'an act *or* example of' *can be added to:* adjectives verbs	important важный constant постоянный depend зависеть	import**ance** (*the quality or state of being important*) важность const**ancy** (*the quality or state of being constant*) постоянство depend**ence** / depend**ency** (*the quality or state of being controlled or supported by another person*) зависимость
-ation **-tion** **-ion** **-(s)sion**	'an act *or* an action of'	inform сообщать express выражать permit разрешать	inform**ation** (*an act of informing* or *knowledge*) сообщение express**ion** (*an act of expressing* or *a group of words*) выражение permi**ssion** (*an act of permitting* or *agreement*) разрешение
-ing	*can be added to:* verbs	read читать	read**ing** (*an act or practice of reading; a figure shown by a measuring instrument*) чтение; показание (прибора)
-er **-or** **-ar** **-r**	'a person who does an activity' 'a thing that …' *can be added to:* verbs	work работать conduct проводить	work**er** (*a person who works*) рабочий conduct**or** (*a substance that acts as a path for heat, electricity, etc.*) проводник
-ian / **-an /** **-ean** (a) **-ist** (b)	'someone who studies, produces, operates …' *can be added to:* (a) nouns in **-ic**, **-ics**, **-y** (b) nouns	mathematics математика physics физика	mathemati**cian** (*a person who studies mathematics*) математик physi**cist** (*a person who studies physics*) физик
-ity / **-ty**	'the quality *or* state *or* an example of (being)' *can be added to:* adjectives (often in **–able**, **-ible**, **-al**, **-ic**)	equal равный legal легальный	equal**ity** (*the state of being equal*) равенство legal**ity** (*the quality or state of being legal*) легальность
-let	'small' *can be added to:* nouns	book книга wave волна	book**let** (*a small book usually with paper covers*) буклет, брошюра wave**let** (*a small wave*) небольшая волна
-ment	'an action *or* result of' 'the condition of' *can be added to:* verbs	develop развивать equip оборудовать	develop**ment** (*an action or result of developing*) развитие equip**ment** (*an action or result of equipping* or *things needed for a particular activity or purpose*) оборудование
-ness	'the quality *or* state of (being)' *can be added to:* adjectives	bright яркий soft мягкий	bright**ness** (*the quality of being bright*) яркость soft**ness** (*the quality or state of being soft*) мягкость
-ship	'the state *or* condition *or* example of (being)' *can be added to:* nouns	relation отношение	relation**ship** (*instance of being related*) (взаимо)отношение

SUFFIXES FOR ADJECTIVES

SUFFIX	MEANING / ADDED TO	EXAMPLES	
-able **-ible**	'able to be …ed' 'worthy of being' 'ought to be' 'showing or having' *can be added to:* verbs	observe наблюдать convert изменять reason разум, благоразумие	observ**able** (*able to be observed*) наблюдаемый convert**ible** (*able to be converted*) изменяемый reasonable (*showing or having reason*) (благо)разумный
-al[1] **-ial** **-ic(al)**[2]	'concerning' 'connected with' *can be added to:* nouns	atom атом theory теория	atom**ic** (*of or concerning atom or atoms*) атомный theoret**ic(al)** (*connected with theory*) теоретический
-ant **-ent**	'the quality *or* state of' *can be added to:* verbs	differ различаться, отличаться	differ**ent** (*unlike; not of the same kind*) различный; отличный, непохожий, не такой, другой
-ar **-ary**[3]	'producing' 'connected with' 'the quality *or* state of' *can be added to:* nouns	molecule молекула revolution революция	molecul**ar** (*connected with molecules*) молекулярный revolution**ary** (*connected with revolution; completely new and different*) революционный
-ful	'having *or* causing …' *can be added to:* nouns	power сила, мощность	power**ful** (*having power*) сильный, мощный
-less	'without' 'that never …s' 'that cannot be …ed' *can be added to:* nouns	count считать, подсчитывать power сила	count**less** (*that cannot be counted*) бесчисленный, неисчислимый power**less** (*without power*) бессильный
-ish	'like / typical of' 'rather / slightly' *can be added to:* nouns, adjectives	child ребенок, дитя red красный	child**ish** (*typical of a child; like a child*) ребяческий, детский redd**ish** (*slightly red*) красноватый
-ive **-tive** **-ative**	'having a tendency, character or quality' *can be added to:* verbs, nouns	describe описывать, изображать create творить, создавать	descript**ive** (*that describes*) описательный, изобразительный creat**ive** (*creating new ideas and things*) творческий, созидательный
-ous	'able to or likely to (be / cause)' 'having …' *can be added to:* nouns	danger опасность space пространство	danger**ous** (*able to or likely to cause danger*) опасный spac**ious** (*having a lot of space*) просторный; обширный
-y[4]	'making or having …' *can be added to:* nouns adjectives	noise опасный sun солнце	nois**y** (*making a lot of noise*) шумный, шумливый sunn**y** (*having bright sunlight*) солнечный, освещенный солнцем

[1] **-al** also makes **nouns** meaning '*the act of*' (arriv**al** '*the act of arriving*' – приезд, прибытие).

[2] More information is given on page 14.

[3] **-ary** also makes **nouns** meaning '*a person or thing connected with or a place for*' (libr**ary** '*a building which contains book that can be read and usually borrowed* – библиотека).

[4] **-y** also makes **nouns** meaning 1) '*something done*' (discover**y** '*something discovered*' – открытие); 2) '*feelings*' (jealous**y** – ревность; sympath**y** – симпатия); 3) (also **-ei**) '*names for people and animals*' (granny – grandmother; Jam**ie** – James; dogg**y** - dog).

SUFFIXES FOR VERBS

SUFFIX	MEANING / ADDED TO	EXAMPLES	
-ate[1]	'to act as' 'to cause to become' *can be added to:* nouns, adjectives	active активный regular регулярный, правильный	activ**ate** (*to cause to be active*) активизировать regulate (*to make regular* or *to bring order or method to*) регулировать, упорядочивать
-en[2]	'to cause to be *or* to have' *can be added to:* nouns, adjectives	dark темный soft мягкий	dark**en** (*to make or become dark*) затемнять; темнеть soft**en** (*to make or become soft*) смягчать(ся)
-ify / **-fy**	'to make *or* (cause to) become' *can be added to:* nouns, adjectives	simple простой pure чистый, беспримесный	simpl**ify** (*to make simple*) упрощать pur**ify** (*to make pure*) очищать(ся)
-ize / **-ise**[3]	'to make *or* (cause to) become' *can be added to:* nouns, adjectives	summary резюме, краткое изложение legal законный, легальный	summar**ize** (*to make or give summary*) резюмировать, суммировать; legal**ize** (*to make legal*) узаконивать, легализовать

[1] **-ate** also makes
adjectives meaning '*showing; full of*' (consider**ate** '*showing consideration for*' – внимательный, деликатный, тактичный);
nouns meaning 'a group of people' (electorate '*all the people who can vote*'– электорат).

[2] **-en** also makes **adjectives** meaning '*made of; like*' (golden '*made of gold or like gold*' – золотой).

[3] Both **-ize** and **-ise** are used in British English, but only **-ize** is generally used in American English.

SUFFIXES FOR ADVERBS

SUFFIX	MEANING / ADDED TO	EXAMPLES	
-fold	'times / multiplied by' *can be added to:* numerals	four четыре	four**fold** (*four times*) четырежды; вчетверо *adj:* четырехкратный[4]
-ly[5]	'in the manner of' *can be added to:* adjectives	slow медленный	slow**ly** (*in a slow manner*) медленно
-ward **-wards**	'in the direction of' *can be added to:* nouns adverbs	back спина; назад, обратно	back**ward(s)** (*toward the back, the beginning, or the past*) назад, задом; задом наперед, наоборот; в обратном направлении *adj:* обратный (*о движении*)[4]
-ways **-wise**	'in the manner *or* direction of' *can be added to:* nouns	length длина clock часы	length**ways** / length**wise** (*in the direction of the length*) вдоль, в длину clock**wise** (*in the direction in which the hands of a clock move*) по часовой стрелке *adj:* движущийся по часовой стрелке[4]

[4] **-fold, -ward(s), -ways/-wise** makes both **adverbs** and **adjectives**.

[5] More information is given on page 14.

WORD USAGE: SOME PROBLEM CASES

ADJECTIVES ENDING IN *-ic / -ical*

		-ic	*-ical*
Adjectives ending in **either** *-ic* **or** *-ical*		**atomic**, **characteristic**, **cosmic**, **electromagnetic**, **energetic**, **kinematic**, **kinetic**	**biological**, **chemical**, **grammatical**, **logical**, **mathematical**, **mechanical**, **medical**, **physical**, **practical**
Adjectives ending in **both** *-ic* **and** *-ical*	with different meanings	**classic** – классический, образцовый (*having the highest quality; of the first or highest class; well known as best example*); a **classic** style of dress / building, a **classic** example / case **electric** – электрический (*producing or worked by electricity; is used with the names of particular machines*) an **electric** clock / iron / guitar / light / lighting / motor **historic** – исторический (*historically important places, events, customs*); ***a place is historic** if it has a long history; **an event is historic** if it will be remembered in history* a **historic** house **optic** – глазной, зрительный (*of or belonging to the eyes*); the **optic** nerve	**classical** – классический (*belonging to so-called 'classical' period of 18th century; established before modern time*); **classical** physics / literature, a **classical** education / language **electrical** – электрический (*concerned with or using electricity; is used before more general words, people and their work or things*); an **electrical** engineer / fault in the system **electrical** engineering / equipment **historical** – исторический (*connected with the study of history*); ***characters** or **events** are **historical** if they have really existed or happened in history* a **historical** play / research / period Was King Arthur a **historical** figure? **optical** – оптический, зрительный (*of or about the sense of sight; for looking through, to help eyesight*); (an) **optical** instrument / phenomenon / illusion
	with the same meaning	**academic(al)**, **algebraic(al)**, **arithmetic(al)**, **astronomic(al)**, **atmospheric(al)**, **dynamic(al)**, **geographic(al)**, **geologic(al)**, **geometric(al)**, **microscopic(al)**, **pedagogic(al)**, **periodic(al)**, **theoretic(al)**, **symmetric(al)**, **systematic(al)**	

ADVERBS WITH AND WITHOUT *-ly*

I. Most adverbs consist of '*an adjective + the ending -ly*'. There are, however, a number of words which are **both adjective and adverb** and **cannot add the adverbial ending *–ly***:

early – ранний; рано	**little** – маленький; мало
enough – достаточный; достаточно	**low** – низкий; низко
far – далекий; далеко	**much** – много
fast – быстрый; быстро	**straight** – прямой; прямо

II. Some other adjectives can be used as adverbs **both with and without *–ly***. The two forms **have different meanings**. The forms are not interchangeable and should not be confused.

close тесно, близко	**closely** внимательно	**like** так, подобно	**likely** вероятно
fine очень, прекрасно	**finely** тонко, мелко (*о механизме*)	**most** очень; больше всего	**mostly** обычно, главным образом
free бесплатно	**freely** свободно	**near** близко, рядом	**nearly** почти
hard тяжело	**hardly** едва (ли), вряд ли	**pretty** весьма	**prettily** красиво
high высоко (*о высоте*)	**highly** высоко (*о степени*), весьма	**sharp** ровно, точно (*о времени*)	**sharply** резко, остро
just только что, как раз	**justly** справедливо	**short** внезапно	**shortly** вскоре, незадолго
late поздно	**lately** недавно, за последнее время	**wide** широко – полностью; совершенно, абсолютно	**widely** широко – повсюду, во многих местах; в значительной степени

COMMONLY MISUSED WORDS

I. Easily confused words

a) words with the similar pronunciation or spelling

accept [ək'sept] *v* принимать **except** [ɪk'sept] *v* исключать; *prep* исключая, кроме	**peace** [pi:s] *n* 1) мир; 2) спокойствие, тишина **piece** [pi:s] *n* 1) кусок, часть (целого); 2) отдельный предмет
affect [ə'fekt] *v* влиять, вызывать изменения **effect** [ɪ'fekt] *v* производить, осуществлять	**principal** ['prɪn(t)səp(ə)l] 1) *n* глава, начальник, директор; 2) *a* главный, основной **principle** ['prɪnsəpl] *n* принцип; правило; закон
cause [kɔ:z] *n* причина, основание, повод **coarse** [kɔ:s] *a* 1) грубый; 2) шероховатый **course** [kɔ:s] *n* 1) курс, направление; 2) курс (*лекций, обучения*)	**quiet** [kwaɪət] *a* тихий, спокойный, бесшумный **quite** [kwaɪt] *adj* полностью, весьма; довольно
data ['deɪtə] *n* (*pl* от datum) данные **date** [deɪt] *n* дата; свидание (*to have a date*)	**right I** [raɪt] *a* правильный, верный **right II** [raɪt] *a* правый (*о стороне*) **right-hand** – правый (*о стороне*) **write** [raɪt] *v* писать
deference ['def(ə)r(ə)ns] *n* уважение **difference** ['dɪfrəns] *n* разница, различие	**same** [seɪm] *pron* один и тот же; одинаковый **some** [sʌm] *pron* несколько, некоторый
high [haɪ] *a* высокий, большой, сильный, интенсивный **height** ['haɪt] *n* высота	**walk** [wɔ:k] *n/v* прогулка (*go for a walk*) / гулять **work** [wə:k] *n/v* работа (*go to work*) / работать ***to walk into the work*** – легко добиться этой работы
later ['leɪtə] *adv* позже **latter** ['lætə] *adv* последний (*из двух названных*)	**word** [wə:d] *n* слово; **world** [wə:ld] *n* мир, свет; вселенная ***in a word*** – одним словом, короче говоря
leave [li:v] *v* (left) уезжать, покидать, оставлять **live** [lɪv] *v* жить	**weigh** [weɪ] *v* взвешивать, оценивать **weight** [weɪt] *n* 1) вес; 2) тяжесть

b) words with the same pronunciation and spelling but different meaning

both – оба **both … and …** – как … так и …	**least** – наименьший **at least** – по крайней мере
because – потому что **because of** – из-за	**once** – однажды, единожды, один раз **at once** – тотчас
first – первый **at first** – вначале, сначала	**only** – только **the only** – единственный
last – последний **at last** – наконец	**term** – 1) срок; 2) термин **in terms of** – исходя из, на основании, с точки зрения

II. Confusingly related words

among [ə'mʌŋ] *prep* среди (*трех и более предметов*) **between** [bɪ'twi:n] *prep* между (*двух предметов*)	**experience** [ɪks'pɪərɪəns] *n* опыт (*жизненный*) **experiment** [ɪks'perɪmənt] *n* опыт, эксперимент
compare [kəm'pɛə] *v* сравнивать; выявлять сходство **contrast** [kən'trɑ:st] *v* сопоставлять; выявлять различие	**latest** ['leɪtɪst] *a* последний (новейший) **last** [lɑ:st] *a* последний (по времени); прошлый ***last but not least*** – а) последний, но не менее важный; б) не самый худший ***last but one*** – предпоследний
discover [dɪs'kʌvə] *v* открывать, делать (научное) открытие **open** ['əup(ə)n] *v* открывать (*что-л. закрытое*)	**next** [nekst] *a* следующий за; ближайший, соседний **following** ['fɔləuɪŋ] *a* (по)следующий

WORD SPELLING: MNEMONICS *

FIRST LETTER MNEMONICS OF SPELLING / SPELLING ACRONYMS* *The following mnemonics are sentences or phrases in which the initial letters of the words spell out a new word.*	
ARGUMENT	**A Rude Girl Undresses; My Eyes Need Taping!**
ARITHMETIC	**A Rat In The House May Eat The Ice Cream.** **A Rat In The House May Eat Tom's Ice Cream.** **A Red Indian Thought He Might Eat Tomatoes In Church.** **A Red Indian Thought He Might Eat Toffee In Church.**
BECAUSE	**Big Elephants Can Always Understand Small Elephants.** **Big Elephants Can't Always Use Small Entrances.**
GEOGRAPHY	**George's Elderly Old Grandfather Rode A Pony Home Yesterday.**
NECESSARY	**Not Every Cat Eats Sardines (Some Are Really Yummy).** **Never Eat Crisps, Eat Salad Sandwiches, And Remain Young!**
OCEAN	**Only Cat's Eyes Are Narrow.**
TOMORROW	**Trails Of My Old Red Rose Over Window.**
MNEMONICS TO REMEMBER SPECIFIC SYLLABLES OR LETTERS IN A WORD	
BEAUTIFUL	**Big Elephants Are Ugly.**
BELIEVE	Don't **belie**ve a **lie**.
FRIEND	When ***Fri*** **ends**, you go out with your ***fri*****ends**. (*Note:* ***Fri*** *is a written abbreviation of* ***Friday***.)
MEASUREMENT	You should be **sure** of your mea**sure**ment before you start work.
SECRETARY	A **secret**ary must keep a **secret**.
SEPARATE	There is ***a*** **rat** in sep***a*****rate**. Always remember ***a*** **rat** when you spell sep***a*****rate**. There was a farmer named **Sep** and one day his wife saw **a rat**. She yelled, "**Sep! A rat – E!!!**"
TEACHER	There is an **ache** in every te**ache**r.
POTASSIUM	One **tea**, two **sugars**.
IE *or* EI FIELD BELIEVE PIECE RECEIVE WEIGH *etc.*	Alice's rule (We usually write '**ie**', but we write '**ei**' after '**c**'.) **I** before **e** ***except*** after **c** Or when sounded like [eɪ] as in neighbour or weigh.
DISTINGUISHING BETWEEN SIMILAR WORDS	
ADVICE (*n*) *or* ADVISE (*v*) PRACTICE (*n*) *or* PRACTISE (*v*) *etc.*	***'Noun'*** comes before the word ***'verb'*** in the dictionary; likewise ***'c'*** comes before ***'s'***, so the **nouns** are 'advice, practice, *etc.*' and the **verbs** are 'advise, practise, *etc.*'
DESERT *or* DESSERT	The sweet one has two **s**ugars.
HEAR *or* HERE	We **hear** with our **ear**.
PRINCIPAL *or* PRINCIPLE	Your princi**pal** is your **pal**. (*pal = friend*) A princi**ple** can be called a ru**le**.
STATIONARY *or* STATIONERY	Stationary (*not moving*) contains **-ar** and so does **car**. Stationery (*writing and other office materials*) contains **-er** and so does pa**per**.

* **Mnemonics** are memory devices that help learners to remember information. There are several different types of mnemonics. The most popular of them are songs, rhymes, **acronyms** and **acrostics**.

Acronyms – The information to be remembered is abbreviated, using only the first letter of each word, making a new word.

Acrostics – The first letter of each word in a list to be remembered is made into a new word. The new words then combine into a (usually) silly sentence.