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英语

第三册

(土建、水利类)

教师参考书

谢倬杰 主编

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高等教育出版社

高等学校教学参考书

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谢卓然(主编) 涂荣英 叶国铮

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内 容 提 要

本书是高等学校试用教材《英语》第三册(土建、水利类)教师参考书,供使用这本教材的教师教学参考之用,同时也可作为自学者参考之用。

本书内容包括:词汇学习,课文参考译文,练习参考答案,阅读材料译文及补充阅读材料译文。

本书承清华大学丁孝弘副教授审阅。

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编 者 的 话

本书系高等学校试用教材《英语》第三册(土建、水利类)教师参考书,供使用这本教材的教师教学参考之用,同时也可作为自学者学习参考之用。

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词汇学习,根据本专业常用词汇在教材中先后出现的用法以及在科技文献中经常碰到的用法补充了较多的例子,但这并非要求授课教师全部予以讲解,而是便于教师能够根据所教班的具体情况有选择的讲授。

课文译文、作业解答及阅读材料译文都是参考材料。教师可根据自己授课内容和学生完成作业的具体能力,决定取舍,不必局限于参考书中所述内容。

在本书编写过程中,美籍英语教师菲德·罗纳尔德(Ronald Fehd)先生曾协助编写部分练习答案,谨此致谢。

由于编者水平有限,对书中不妥以及错误之处,希使用本书者不吝赐教。

编者

1983年2月

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第 一 课

词 汇 学 习

Term

term

1) n. 学期, 期限; 术语; 项; 条款, 条件

(1) How do you say a push or a pull in technical terms?

推或拉用专门术语该怎样说?

(2) Are there any examinations at the end of the term?

学期末了有无考试?

(3) He is employed for a two-year term.

他的雇用期为两年。

(4) What do the terms force and work mean in physics?

力和功这两个术语在物理学上的涵义是什么?

(5) The expression $a^2 + 2ab + b^2$ has three terms.

$a^2 + 2ab + b^2$ 这个式子有三项。

(6) The term civil engineering is set up as a distinction from the military engineering.

土木工程这个术语是为了有别于军事工程而成立的。

2) vt. (= name, call) 把……称为……, 把……叫做……

(1) Any push or pull is termed a force.

任何推或拉统称为力。

(2) He has no right to *term* himself a professor.

他没有权力自称为教授。

3) *phrase*: in terms of 根据; 按照; 关于; 就……而论; 在……方面

(1) We describe a force *in terms of* its three attributes
—magnitude, direction and point of application.

我们是通过力的三要素——大小、方向、作用点来描述力的。

(2) We should consider problems *in terms of* the people's interests.

我们应从人民利益出发来考虑问题。

Exercise: Translate the following sentences into Chinese:

1) Our new *term* began on Monday last.

(我们上星期一开学。)

2) It is a chemical *term*.

(这是一个化学术语。)

3) Work and force are two *terms* in physics.

(功和力是物理学的两个术语。)

4) To solve an equation means to find the value of the unknown *term*.

(解方程的意思就是求未知数的值。)

5) Parts of a number smaller than 1 are sometimes expressed *in terms of* fractions, but in scientific usage they are given as decimals.

(小于1的数有时用分数表示。但在科学用语里,它们是用小数表示的。)

6) We cannot accept your offer on such *terms*.

(在这样的条件下,我们不能接受你的提议。)

- 7) Heat and the other forms of energy are measured **in terms of** their work equivalents (功当量) .

(热和能量的其他形式是通过它们的功当量度量的。)

Pull, Pulling, Push, Pushing

1. pull

- 1) vt. 拉, 扯, 拖; 拔

(1) *Pull* your chair to the table, please.

请把椅子拉到桌子旁边。

(2) The earth is *pulled* towards the sun by the force of gravity.

太阳靠引力作用吸引地球。

(3) He told them not to *pull up* these nails.

他叫他们不要把这些钉子拔掉。

- 2) vi. 拉, 拖; 拔

(1) The tractor *pulls* well.

这台拖拉机拉力大。

(2) These nails *pull* easily.

这些钉子容易拔。

(3) The train *pulled* into (out) the station.

火车进(出)站了。

(4) When you move a heavy body the magnitude of the applied force depends on how hard you are pushing or *pulling*.

移动一个重物时, 作用力的大小取决于你推或拉的费力程度。

3) n. 拉力, 拖力, 牵引力; 拉, 拖, 拔

(1) The word *force* is a general term for any push or *pull*.

力这个词是(任何)推或拉的总称。

(2) The force of gravity is the *pull* of the earth upon other bodies.

重力就是地球对其他物体的拉力。

2. *pulling* (gerund) 拉; 拉力

Pushing or *pulling* does not necessarily mean doing work.

推或拉并不一定意味着做功。

3. *push*

1) vt. 推, 推动; 推进; 执行, 推行

(1) Will you please *push* that box nearer (across) to me?

请你把那个盒子推到我这边好吗?

(2) We took this opportunity to *push* our scientific research work forward.

我们利用这个机会推动我们的科研工作。

2) vi. 推进; 快速前进

(1) You *push* while I pull.

你推我拉。

(2) He *pushed* at the door but could not open it.
他推门, 但没推开。

3) n. 推; 推力

(1) He gave a *push* at the door.

他将门一推。

(2) The words "pressure", "load", "pull", "*push*"

etc., are frequently used as alternatives to the word "force".

“压力”、“荷载”、“拉力”、“推力”等词经常用来代换“力”这个词。

- (3) We must make a *push* to get it done.

我们必须一鼓作气把这件事干完。

4. **pushing** (gerund) 推; 推力

Pushing or pulling an object but not moving it is not doing work.

推或拉一个物体, 但没有移动它, 并没有做功。

Exercise: Fill each blank with pull, pulls, pulled, push, pushes pulling or pushing:

- 1) He (pulled) the stool under the table.
- 2) Don't (push). Wait your turn to get on the bus.
- 3) If you (push) on a heavy box but fail to move it, you do no work in a scientific sense.
- 4) Lifting, (pushing), (pulling) or holding an object does not necessarily mean doing work.
- 5) When you lift a book, (pull) a car or move a box, you must apply force.
- 6) When the door is almost closed, the magnetic attraction (pulls) it, and keeps it tightly shut.
- 7) The biggest stage of the step rocket gives the first big (push) to get all stages off the ground.
- 8) Please give a (pull) at the rope.
- 9) The word force is a general term for any (push) or (pull).

Exert, Exert ... on, Exertion
Apply, Apply ... to , Application

1. exert vt.

(a) 施加; 尽力

- (1) Water *exerts* force in all directions, and its force on any surface is always at right angles to that surface.

水向四面八方施加压力, 水对任一表面的作用力总是与该表面垂直的。

- (2) One of the men *exerts* a greater pull on the rope than the other.

其中一人对绳子施加的拉力比另一人大。

- (3) The passive resisting force or reactions *exerted* by the supports are in an upward direction.

由支座施加的被动抗力或反作用力的方向朝上。

(b) (exert... on) 把……施加于……上

- (1) Water always *exerts* an upward force on an object in it.

水对在其中的任一物体都施加一个向上推力。

- (2) A force is always *exerted on* a body by another body, or on a part of a body by another part.

力总是由一个物体施加到另一个物体上, 或由物体的一部分施加到另一部分上。

2. exertion n. 尽力; 努力

We must combine *exertion* and rest.

我们必须劳逸结合。

3. apply

1) vt.

(a) 使用; 应用; 运用

(1) All machines *apply* force to do work.

一切机器都用力来作功。

(2) If the mechanical advantage is smaller than 1, the machine decreases the *applied* force; if it is larger than 1, it increases the *applied* force.

如果机械效益小于1, 机械使作用力减小。如果机械效益大于1, 机械使作用力增大。

(b) (apply ... to) 施加; 把……应用于(施加于)……; 给……供应……; 致力于……

(1) In this way we can better *apply* theory to practice.

这样我们就能把理论更好地运用到实践中去。

(2) We must *apply* oil to machines.

我们必须给机器上油。

(3) Plastics has been *applied* to mechanical engineering.

塑料已应用于机械工程。

(4) In fact, it is customary and convenient to speak of the force itself as acting on the body to which it is *applied*.

实际上, 为了方便起见, 习惯上我们常把力本身说成是对受力物体的作用。

(5) He *applied* himself closely to the study of foreign languages.

他刻苦学习外语。

2) vi.

(a) (apply to...) 适合于; 适用于……

(1) This book does not *apply to* beginners.

这本书对初学者不适用。

(2) The principle does not *apply to* this case.

这个原理不适用于这种情况。

(b) (*apply for*...) 要求; 申请; 接洽

(1) He *applied for* help.

他要求援助。

(2) You have to *apply for* a passport before you go abroad.

在你出国之前必须申请护照。

4. **application** n. 应用; 施加; 施加到(应用到); 在……应用
(常接 to) (application of ... to ...)

(1) The *application of* plastics to civil engineering is on the increase.

塑料在土木工程中的应用不断增长。

(2) Plastics finds wide *application* in our daily life.

塑料在我们日常生活中得到广泛应用。

【注】: *exert* 和 *apply* 两词表示“对……施加……”的意思时是
同义词, 但所接的介词不同, 应加注意:

$$\left\{ \begin{array}{l} \text{exert ... on ...} \\ \text{apply ... to ...} \end{array} \right\} \text{对……施加……}$$

例: (1) To push or pull a box, you must *exert* a force *on* it.

你要推或拉一只箱子, 就必须在箱子上施加一个力。

(2) If a sufficient force is *applied to* an object, the latter will begin to move in the direction of the

former.

如果对一物体施加足够的力，那么该物体就开始向力的作用方向移动。

Act, Acting, Action

1. act

1) vt. 行动, 表现出; 演出, 扮演

(1) He *acted* the part very well.

他扮演这个角色很出色。

(2) Don't *act* the fool.

别装傻了。

2) vi. 行动, 做, 干; 作用

(1) We shouldn't keep on talking; we should *act*.

我们不能再空谈了, 我们必须行动。

(2) Loads are the external forces *acting* on a structure.

荷载是作用于结构上的外力。

(3) He *acted* as if he were a child.

他的行为举止简直像个孩子。

(4) The pump is not *acting* well.

这台抽水机不大好用。

(5) The force *acts* in a horizontal direction.

这个力朝水平方向作用。

3) n. 行为

That is true *act* of friendship.

那是真正的友好行为。

4) phrase: act as 充当; 做; 作用像……

act on (upon) 对……起作用; 作用于……
对……有效

- (1) The earth *acts as* a great magnet.
地球的作用像一块很大的磁石。
- (2) Water, too, can *act as* lubricant to smooth a surface.
水也像润滑剂一样能够润滑物体的表面。
- (3) Experience has taught us that objects at rest remain in that condition unless *acted upon* by outside force.
经验告诉我们静止的物体如果不受外力作用将永远保持静止。
- (4) There are four forces *acting on* an aircraft as it flies through the air.
飞机在天空中飞行时受四种力的作用。
- (5) Acids *act upon* metals.
酸对金属产生腐蚀作用。

2. **acting** (gerund, or present participle) 作用; 表演

- (1) She did a lot of *acting* while she was at college.
她在大学时代演过很多戏。
- (2) When designing a structure, the designer must estimate all the forces *acting on* the structure and its component parts.
结构设计时, 设计者必须估算作用在结构及其部件上的所有的力。

3. **action** n. 作用; 行动

- (1) A force can be defined as the *action* of one

body on another.

力可定义为一物体对于另一物体的作用。

(2) Newton's laws of motion govern the *action* of forces upon a body at rest and in motion.

牛顿的运动定律是决定力对于静止和运动物体的作用的。

Exercise: Fill each gap with right words or phrase given in the brackets:

- 1) Heat ____ (acts on; exerts) bodies and causes them to expand.
- 2) By gravitation the sun and the planets ____ (apply; act) and react upon one another.
- 3) If a force of 50 kilograms is ____ (acted on; exerted on) a crane and it lifts a load weighing 1000 kilograms, the mechanical advantage of the crane is 20.
- 4) Work is measured by multiplying the force by the distance the force ____ (exerts; acts).
- 5) When the forces ____ (applying to; acting on) a body do not cancel each other, motion is produced.
- 6) This is called the Law of ____ (Application; Action) and Reaction.
- 7) Newton's laws of motion ____ (apply to; exert on) all things on the earth.
- 8) When pressure is ____ (applied on; applied to) ice, part of it will melt.
- 9) People have never ____ (exerted; applied) such abstract mathematics to a great variety of problems before.