

Morning Reading 晨读

Grade 11 · AS · Week 8

Read each word aloud, then copy the English word three times. 朗读每个单词，然后把英语单词抄写三遍。

Reading 阅读

Read the passage aloud twice. 把短文朗读两遍。

A steel ship weighs thousands of tonnes. Why does it float when a steel coin sinks? A body in water feels an upward force, the **upthrust**, equal to the weight of the water it has **displaced**. This is **Archimedes’ principle**. The ship’s hull is shaped to push aside an enormous volume of water, so the upthrust can match its huge weight. The coin displaces almost nothing, so it sinks. Even the air pushes on us: **atmospheric pressure** at sea level is about 100,000 pascals, though we never notice it.

Chemists this week met energy in reactions. An **exothermic** reaction releases heat, like the hand warmers 暖手宝 sold in winter; an **endothermic** one absorbs it, like the instant cold packs used for sports injuries. Every reaction must first climb over its **activation energy**.

In the market diagram, the crossing point of demand and supply gives the **equilibrium price**. Below it there is **excess demand**: a **shortage**, queues, and pressure for the price to rise.

Talk about it 说一说:

- 1. A ship floats but a coin sinks. Explain the difference in one sentence.
- 2. Ice-cream sellers cut prices every evening. What does this say about equilibrium?

Physics

Topics 5–6 · Work, energy and power, Deformation of solids

|                                                                                                                               |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>chemical energy</b> 化学能                |  |  |  |
| <i>/ˈkɛmɪkəl ˈɛnədʒi/</i>                                                                                                     |  |  |  |
|  <b>frictionless</b> 无摩擦                   |  |  |  |
| <i>/ˈfrɪkʃənləs/</i>                                                                                                          |  |  |  |
|  <b>ramp</b> 斜坡                            |  |  |  |
| <i>/ræmp/</i>                                                                                                                 |  |  |  |
|  <b>efficiency</b> 效率                      |  |  |  |
| <i>/ɪˈfɪjənsi/</i>                                                                                                            |  |  |  |
|  <b>voltage</b> 电压                         |  |  |  |
| <i>/ˈvɒlteɪdʒ/</i>                                                                                                            |  |  |  |
|  <b>spring</b> 弹簧                          |  |  |  |
| <i>/sprɪŋ/</i>                                                                                                                |  |  |  |
|  <b>compression</b> 压缩                     |  |  |  |
| <i>/kəmˈpreʃn/</i>                                                                                                            |  |  |  |
|  <b>spring constant</b> 劲度系数               |  |  |  |
| <i>/sprɪŋ ˈkɒnstənt/</i>                                                                                                      |  |  |  |
|  <b>tensile</b> 拉伸                         |  |  |  |
| <i>/ˈtɛnsəl/</i>                                                                                                              |  |  |  |
|  <b>extension</b> 伸长量                     |  |  |  |
| <i>/ekˈstɛnʃn/</i>                                                                                                            |  |  |  |
|  <b>load</b> 负载                          |  |  |  |
| <i>/ləʊd/</i>                                                                                                                 |  |  |  |
|  <b>Hooke’s law</b> 胡克定律                 |  |  |  |
| <i>/hʊks lɔː/</i>                                                                                                             |  |  |  |
|  <b>limit of proportionality</b><br>比例极限 |  |  |  |
| <i>/ˈlɪmɪt ɒv prəˌpɔːʃəˈnælɪti/</i>                                                                                           |  |  |  |
|  <b>elastic</b> 弹性                       |  |  |  |
| <i>/ɪˈlæstɪk/</i>                                                                                                             |  |  |  |
|  <b>plastic</b> 塑性                       |  |  |  |
| <i>/ˈplæstɪk/</i>                                                                                                             |  |  |  |

|                                                                                                             |  |  |  |
|-------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>series</b> 串联          |  |  |  |
| <small>/ˈsɪəriːz/</small>                                                                                   |  |  |  |
| <b>= parallel</b> 并联                                                                                        |  |  |  |
| <small>/ˈpærəlel/</small>                                                                                   |  |  |  |
|  <b>strain</b> 应变          |  |  |  |
| <small>/streɪn/</small>                                                                                     |  |  |  |
|  <b>Young modulus</b> 杨氏模量 |  |  |  |
| <small>/jʌŋ ˈmɒdjʊləs/</small>                                                                              |  |  |  |
|  <b>pulley</b> 滑轮          |  |  |  |
| <small>/ˈpʊli/</small>                                                                                      |  |  |  |

## Chemistry

Topics 4–5 · States of matter, Chemical energetics

|                                                                                                                    |  |  |  |
|--------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>covalent bonds</b> 共价键        |  |  |  |
| <small>/ˈkəʊvələnt bɒndz/</small>                                                                                  |  |  |  |
|  <b>silicon(IV) oxide</b> 二氧化硅    |  |  |  |
| <small>/ˈsɪlɪkən ˈɒksaɪd/</small>                                                                                  |  |  |  |
|  <b>graphite</b> 石墨               |  |  |  |
| <small>/ˈɡræfʌɪt/</small>                                                                                          |  |  |  |
|  <b>diamond</b> 金刚石               |  |  |  |
| <small>/ˈdaɪəmənd/</small>                                                                                         |  |  |  |
|  <b>giant metallic</b> 金属晶体      |  |  |  |
| <small>/ˈdʒaɪənt məˈtæɪlɪk/</small>                                                                                |  |  |  |
|  <b>melting point</b> 熔点        |  |  |  |
| <small>/ˈmeltɪŋ poɪnt/</small>                                                                                     |  |  |  |
|  <b>electrical conductivity</b> |  |  |  |
| 导电性                                                                                                                |  |  |  |
| <small>/ɪˈlektrɪkl kɒndəktɪvɪti/</small>                                                                           |  |  |  |
|  <b>solubility</b> 溶解度          |  |  |  |
| <small>/ˌsɒljʊːˈbɪlɪti/</small>                                                                                    |  |  |  |
|  <b>enthalpy change</b> 焓变      |  |  |  |
| <small>/enˈθælpi tʃeɪndʒ/</small>                                                                                  |  |  |  |

|                                                                                                                                   |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>exothermic</b> 放热                          |  |  |  |
| <small>/egzəˈθɜːmɪk/</small>                                                                                                      |  |  |  |
|  <b>endothermic</b> 吸热                         |  |  |  |
| <small>/endaʊˈθɜːmɪk/</small>                                                                                                     |  |  |  |
|  <b>reaction pathway diagram</b> 反应路径图         |  |  |  |
| <small>/rɪˈækʃn ˈpæθweɪ ˈdaɪəɡræm/</small>                                                                                        |  |  |  |
|  <b>activation energy</b> 活化能                  |  |  |  |
| <small>/æktiˈveɪʃn ˈenədʒi/</small>                                                                                               |  |  |  |
|  <b>standard conditions</b> 标准条件               |  |  |  |
| <small>/ˈstændəd kənˈdɪʃnz/</small>                                                                                               |  |  |  |
|  <b>enthalpy change of reaction</b> 反应焓变       |  |  |  |
| <small>/enˈθælpi tʃeɪndʒ ɒv rɪˈækʃn/</small>                                                                                      |  |  |  |
|  <b>enthalpy change of formation</b> 生成焓变      |  |  |  |
| <small>/enˈθælpi tʃeɪndʒ ɒv fɔːˈmeɪʃn/</small>                                                                                    |  |  |  |
|  <b>enthalpy change of combustion</b> 燃烧焓变     |  |  |  |
| <small>/enˈθælpi tʃeɪndʒ ɒv kamˈbʌstʃn/</small>                                                                                   |  |  |  |
|  <b>enthalpy change of neutralisation</b> 中和焓变 |  |  |  |
| <small>/enˈθælpi tʃeɪndʒ ɒv ˌnjuːtrəlaɪˈzeɪʃn/</small>                                                                            |  |  |  |

## Biology

Topics 3–4 · Enzymes, Cell membranes and transport

|                                                                                                                    |  |  |  |
|--------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>temperature</b> 温度        |  |  |  |
| <small>/ˈtemprɪtʃə/</small>                                                                                        |  |  |  |
|  <b>colorimeter</b> 比色计       |  |  |  |
| <small>/ˌkɒləˈrɪmɪtə/</small>                                                                                      |  |  |  |
|  <b>rate of reaction</b> 反应速率 |  |  |  |
| <small>/reɪt ɒv rɪˈækʃn/</small>                                                                                   |  |  |  |
|  <b>kinetic energy</b> 动能     |  |  |  |
| <small>/kɪˈnetɪk ˈenədʒi/</small>                                                                                  |  |  |  |

|                                                                                                                            |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>collide</b> 碰撞                        |  |  |  |
| <small>/kə'laɪd/</small>                                                                                                   |  |  |  |
|  <b>optimum temperature</b><br>最适温度       |  |  |  |
| <small>/ˈɒptɪmə 'temprɪtʃə/</small>                                                                                        |  |  |  |
|  <b>denature</b> 变性                       |  |  |  |
| <small>/ˈdenətʃə/</small>                                                                                                  |  |  |  |
|  <b>buffer solution</b> 缓冲液               |  |  |  |
| <small>/ˈbʌfə sə'luʃn/</small>                                                                                             |  |  |  |
|  <b>inhibitor</b> 抑制剂                     |  |  |  |
| <small>/ɪn'hɪbɪtə/</small>                                                                                                 |  |  |  |
|  <b>Michaelis–Menten constant</b> 米氏常数    |  |  |  |
| <small>/ˈmaɪkəlɪz 'mentn 'kɒnstənt/</small>                                                                                |  |  |  |
|  <b>affinity</b> 亲和力                      |  |  |  |
| <small>/ə'fɪnɪti/</small>                                                                                                  |  |  |  |
|  <b>reversible</b> 可逆                     |  |  |  |
| <small>/rɪ'vɜːsəbl/</small>                                                                                                |  |  |  |
|  <b>competitive inhibitor</b> 竞争性抑制剂      |  |  |  |
| <small>/kəm'petɪtɪv ɪn'hɪbɪtə/</small>                                                                                     |  |  |  |
|  <b>non-competitive inhibitor</b> 非竞争性抑制剂 |  |  |  |
| <small>/nɒn kəm'petɪtɪv ɪn'hɪbɪtə/</small>                                                                                 |  |  |  |
|  <b>immobilised enzyme</b> 固定化酶         |  |  |  |
| <small>/ɪ'məʊbəlaɪzd 'enzaɪm/</small>                                                                                      |  |  |  |
|  <b>alginate</b> 海藻酸盐                   |  |  |  |
| <small>/ˈældʒɪneɪt/</small>                                                                                                |  |  |  |
|  <b>fluid mosaic model</b> 流动镶嵌模型       |  |  |  |
| <small>/ˈfluɪd mɔ'seɪk 'mɒdl/</small>                                                                                      |  |  |  |
|  <b>bilayer</b> 双层                      |  |  |  |
| <small>/ˈbɪleɪə/</small>                                                                                                   |  |  |  |
|  <b>carrier protein</b> 载体蛋白            |  |  |  |
| <small>/ˈkæriə 'prəʊtɪn/</small>                                                                                           |  |  |  |

|                                                                                                                 |  |  |  |
|-----------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>channel protein</b> 通道蛋白 |  |  |  |
| <small>/ˈtʃænl 'prəʊtɪn/</small>                                                                                |  |  |  |
|  <b>cholesterol</b> 胆固醇      |  |  |  |
| <small>/kə'lestərol/</small>                                                                                    |  |  |  |
|  <b>fluidity</b> 流动性         |  |  |  |
| <small>/fluː'ɪdɪti/</small>                                                                                     |  |  |  |
|  <b>glycolipid</b> 糖脂        |  |  |  |
| <small>/ˈglaɪkəlɪpɪd/</small>                                                                                   |  |  |  |

## Mathematics

Topics 1–2 · Pure Mathematics 1, Pure Mathematics 2

|                                                                                                                               |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| $\Sigma$ <b>Integration</b> 积分                                                                                                |  |  |  |
| <small>/ˌɪntɪ'greɪʃn/</small>                                                                                                 |  |  |  |
| <b>+ constant of integration</b><br>积分常数                                                                                      |  |  |  |
| <small>/ˈkɒnstənt ɒv ,ɪntɪ'greɪʃn/</small>                                                                                    |  |  |  |
| <b>[ ] definite integral</b> 定积分                                                                                              |  |  |  |
| <small>/ˈdefɪnət 'ɪntɪgrəl/</small>                                                                                           |  |  |  |
|  <b>region</b> 区域                          |  |  |  |
| <small>/ˈrɪːdʒn/</small>                                                                                                      |  |  |  |
|  <b>volume of revolution</b> 旋转体体积         |  |  |  |
| <small>/ˈvɒljʊːm ɒv ,reva'luːʃn/</small>                                                                                      |  |  |  |
|  <b>composition of functions</b><br>复合函数 |  |  |  |
| <small>/ˌkɒmpə'zɪʃn ɒv 'fʌŋkʃnz/</small>                                                                                      |  |  |  |
|  <b>logarithms</b> 对数                    |  |  |  |
| <small>/ˈlɒɡərɪθəmz/</small>                                                                                                  |  |  |  |
|  <b>exponential function</b> 指数函数        |  |  |  |
| <small>/ˌekspeɪ'nenʃl 'fʌŋkʃn/</small>                                                                                        |  |  |  |
| <b>[ ] modulus</b> 绝对值                                                                                                        |  |  |  |
| <small>/ˈmɒdjʊləs/</small>                                                                                                    |  |  |  |
| <b>x<sup>2</sup> polynomial</b> 多项式                                                                                           |  |  |  |
| <small>/ˌpɒlɪ'nɒmɪəl/</small>                                                                                                 |  |  |  |

Further Mathematics

Topics 1–3 · Further Pure Mathematics 1, Further Mechanics

|                                    |  |  |  |
|------------------------------------|--|--|--|
| ↔ <b>stretch</b> 拉伸                |  |  |  |
| /streɪʃ/                           |  |  |  |
| ↗ <b>shear</b> 切变                  |  |  |  |
| /ʃiə/                              |  |  |  |
| ⚙ <b>Further Mechanics</b> 进阶力学    |  |  |  |
| /ˈfɜːðə mɪˈkæniks/                 |  |  |  |
| ↗ <b>projectile</b> 抛射体            |  |  |  |
| /prəˈdʒektail/                     |  |  |  |
| ∞ <b>constant acceleration</b> 匀加速 |  |  |  |
| /ˈkɒnstənt əkˌsələˈreɪʃn/          |  |  |  |

Computer Science

Topics 5–6 · System Software, Security, privacy and data integrity

|                              |  |  |  |
|------------------------------|--|--|--|
| 📖 <b>program library</b> 程序库 |  |  |  |
| /ˈprəɡræm ˈlaɪbrəri/         |  |  |  |
| 📄 <b>subroutines</b> 子程序     |  |  |  |
| /ˈsabrʊtiːnz/                |  |  |  |
| 📖 <b>static library</b> 静态库  |  |  |  |
| /ˈstætɪk ˈlaɪbrəri/          |  |  |  |
| 🔗 <b>dynamic library</b> 动态库 |  |  |  |
| /daɪˈnæmɪk ˈlaɪbrəri/        |  |  |  |
| 🔧 <b>translator</b> 翻译器      |  |  |  |
| /trænzˈleɪtə/                |  |  |  |
| ⚙ <b>compiler</b> 编译器        |  |  |  |
| /kəmˈpaɪlə/                  |  |  |  |
| ▶ <b>executable</b> 可执行文件    |  |  |  |
| /ɪɡˈzekjʊtəbl/               |  |  |  |
| ▶ <b>interpreter</b> 解释器     |  |  |  |
| /ɪnˈtɜːprɪtə/                |  |  |  |

|                                                     |  |  |  |
|-----------------------------------------------------|--|--|--|
| 🔤 <b>bytecode</b> 字节码                               |  |  |  |
| /ˈbaɪtkoʊd/                                         |  |  |  |
| 💻 <b>virtual machine</b> 虚拟机                        |  |  |  |
| /ˈvɜːtʃʊəl məˈʃiːn/                                 |  |  |  |
| ⚡ <b>just-in-time compilation</b> 即时编译              |  |  |  |
| /dʒʌst ɪn taɪm ˌkɒmpɪˈleɪʃn/                        |  |  |  |
| <> <b>integrated development environment</b> 集成开发环境 |  |  |  |
| /ˈɪntɪɡreɪtɪd dɪˈveləpmənt enˈvaɪrənmənt/           |  |  |  |
| ☺ <b>syntax highlighting</b> 语法高亮                   |  |  |  |
| /ˈsɪntæks ˈhaɪlaɪtɪŋ/                               |  |  |  |
| ✍ <b>auto-complete</b> 自动补全                         |  |  |  |
| /ˈɔːtəʊ kəmˈplɪt/                                   |  |  |  |
| 🔧 <b>debugger</b> 调试器                               |  |  |  |
| /ˈdiːbʌɡə/                                          |  |  |  |
| ⊕ <b>breakpoints</b> 断点                             |  |  |  |
| /ˈbreɪkpoɪnts/                                      |  |  |  |
| 🔑 <b>version control</b> 版本控制                       |  |  |  |
| /ˈvɜːʃn kənˈtrəʊl/                                  |  |  |  |
| 🔗 <b>refactoring</b> 重构                             |  |  |  |
| /rɪˈfæktərɪŋ/                                       |  |  |  |
| 🧪 <b>unit test</b> 单元测试                             |  |  |  |
| /ˈjuːnɪt test/                                      |  |  |  |
| 🛡 <b>security</b> 安全                                |  |  |  |
| /sɪˈkjʊərɪti/                                       |  |  |  |
| 🚫 <b>unauthorised</b> 未授权                           |  |  |  |
| /ʌnˈɔːθəraɪzd/                                      |  |  |  |
| 📖 <b>privacy</b> 隐私                                 |  |  |  |
| /ˈprɪvəsi/                                          |  |  |  |
| 🛡 <b>integrity</b> 完整性                              |  |  |  |
| /ɪnˈteɡrɪti/                                        |  |  |  |
| 🔧 <b>malware</b> 恶意软件                               |  |  |  |
| /ˈmælweə/                                           |  |  |  |

|                                                                                                          |  |  |  |
|----------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>virus</b> 病毒        |  |  |  |
| <i>/ˈvaɪrəs/</i>                                                                                         |  |  |  |
|  <b>worm</b> 蠕虫         |  |  |  |
| <i>/wɜːm/</i>                                                                                            |  |  |  |
|  <b>networks</b> 网络     |  |  |  |
| <i>/ˈnetwɜːks/</i>                                                                                       |  |  |  |
|  <b>Trojan horse</b> 木马 |  |  |  |
| <i>/ˈtraʊdʒn hɔːs/</i>                                                                                   |  |  |  |

## Economics

Topic 2 · The price system and the microeconomy

|                                                                                                                            |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>cross elasticity of demand</b> 需求交叉弹性 |  |  |  |
| <i>/kros ɪləˈstɪsɪtɪ ɒv dɪˈmænd/</i>                                                                                       |  |  |  |
|  <b>price elasticity of supply</b> 供给价格弹性 |  |  |  |
| <i>/praɪs ɪləˈstɪsɪtɪ ɒv səˈplaɪ/</i>                                                                                      |  |  |  |
|  <b>spare capacity</b> 闲置产能               |  |  |  |
| <i>/speə kəˈpæsɪtɪ/</i>                                                                                                    |  |  |  |
|  <b>stocks</b> 库存                         |  |  |  |
| <i>/stɒks/</i>                                                                                                             |  |  |  |
|  <b>momentary</b> 瞬时                      |  |  |  |
| <i>/ˈməʊməntəri/</i>                                                                                                       |  |  |  |
|  <b>short run</b> 短期                    |  |  |  |
| <i>/ʃɔːt rʌn/</i>                                                                                                          |  |  |  |
|  <b>long run</b> 长期                     |  |  |  |
| <i>/lɒŋ rʌn/</i>                                                                                                           |  |  |  |
|  <b>equilibrium</b> 均衡                  |  |  |  |
| <i>/ˌɪkwɪˈlɪbrɪəm/</i>                                                                                                     |  |  |  |
|  <b>equilibrium price</b> 均衡价格          |  |  |  |
| <i>/ˌɪkwɪˈlɪbrɪəm praɪs/</i>                                                                                               |  |  |  |
|  <b>equilibrium quantity</b> 均衡数量       |  |  |  |
| <i>/ˌɪkwɪˈlɪbrɪəm ˈkwɒntəntɪ/</i>                                                                                          |  |  |  |

|                                                                                                                |  |  |  |
|----------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>disequilibrium</b> 非均衡  |  |  |  |
| <i>/dɪˌsiːkwɪˈlɪbrɪəm/</i>                                                                                     |  |  |  |
|  <b>excess demand</b> 超额需求  |  |  |  |
| <i>/ekˈses dɪˈmænd/</i>                                                                                        |  |  |  |
|  <b>shortage</b> 短缺         |  |  |  |
| <i>/ˈʃɔːtɪdʒ/</i>                                                                                              |  |  |  |
|  <b>excess supply</b> 超额供给  |  |  |  |
| <i>/ekˈses səˈplaɪ/</i>                                                                                        |  |  |  |
|  <b>product market</b> 产品市场 |  |  |  |
| <i>/ˈprɒdʌkt ˈmɑːkɪt/</i>                                                                                      |  |  |  |