

# Morning Reading 晨读

Grade 11 · AS · Week 12

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 student asks an image generator for a painting "in the style of a famous artist", and in seconds it appears. **Artificial intelligence** systems learn patterns from millions of examples; this is **machine learning**, and the deepest versions use **neural networks** loosely inspired by the brain. But who owns the picture? The artists whose work trained the model were never asked. **Copyright** law protects creative work, and **intellectual property** in general, yet it was written long before **deep learning** existed. Some programmers choose **open-source** licences that invite sharing; others sell **proprietary** software and guard the code.

In physics, two waves meeting on a string add together: this is **superposition**. Send waves down a rope tied at one end and the reflections combine into a **stationary wave**, with still points called **nodes** and wildly moving points called **antinodes**, the physics behind every guitar note.

Economists picture money moving in a **circular flow of income** between households and firms. **Injections** such as **investment** enlarge the flow; **leakages** such as **saving** shrink it.

Talk about it 说一说:

1. Should an AI image trained on an artist's work need the artist's permission?
2. Press a guitar string at its middle. Predict what happens to the note.

## Physics

Topics 8–9 · Superposition, Electricity

= **double-slit** 双缝

/ˈdʌbl slɪt/

 **path difference** 路程差

/ˈpæθ ˈdɪfrəns/

 **fringe spacing** 条纹间距

/ˈfrɪndʒ ˈspeɪsɪŋ/

 **fringe** 条纹

/ˈfrɪndʒ/

^ **maximum** 极大

/ˈmæksɪmə/

v **minimum** 极小

/ˈmɪnɪmə/

 **diffraction grating** 衍射光栅

/dɪˈfrækʃn ˈɡreɪtɪŋ/

+ **normal** 法线

/ˈnɔːml/

 **slit spacing** 缝间距

/slɪt ˈspeɪsɪŋ/

≡ **order** 级次

/ˈɔːdə/

 **electric current** 电流

/ɪˈlektrɪk ˈkərənt/

⊕ **charge carrier** 载流子

/tʃɑːdʒ ˈkæriə/

⊙ **electron** 电子

/ɪˈlektrɒn/

⦿ **electrolyte** 电解质

/ɪˈlektrolaɪt/

± **ion** 离子

/ˈaɪən/

 **semiconductor** 半导体

/semɪkənˈdʌktə/

⦿ **hole** 空穴

/həʊl/

→ **conventional current** 常规电流

/kənˈvenʃənəl ˈkərənt/

田 **quantised** 量子化  
/ˈkwɒntaɪzd/

⊕ **elementary charge** 基本电荷  
/ˌelɪˈmentəri tʃɑːdʒ/

Chemistry

Topics 10–12 · Group 2, Group 17, Nitrogen and sulfur

△ **carbonate** 碳酸盐  
/ˈkɑːbəneɪt/

↕ **thermal decomposition**  
热分解  
/ˈθɜːml ˌdiːkɒmpəˈziʃn/

⊗ **nitrate** 硝酸盐  
/ˈnaɪtreɪt/

☑ **thermal stability** 热稳定性  
/ˈθɜːml stəˈbɪləti/

△ **halogen** 卤素  
/ˈhælədʒn/

⇌ **volatility** 挥发性  
/ˌvɒləˈtɪləti/

⌊ **hydrogen halide** 卤化氢  
/ˈhaɪdrədʒn ˈhælaɪd/

◊ **halide ion** 卤离子  
/ˈhælaɪd ˈaɪən/

△ **ammonia** 氨  
/æˈmɒniə/

⌋ **precipitate** 沉淀  
/prɪˈsɪpɪteɪt/

∇ **water purification** 水净化  
/ˈwɔːtə ˌpjʊərfɪˈkeɪʃn/

🦠 **bacteria** 细菌  
/bækˈtɪəriə/

= **triple bond** 三键  
/ˈtrɪpl bɒnd/

🧪 **basicity** 碱性  
/beɪˈsɪsɪti/

⊕ **ammonium ion** 铵离子  
/æˈmɒniəm ˈaɪən/

→ **displacement** 置换  
/dɪˈspleɪsmənt/

⚙ **internal combustion engine** 内燃机  
/ɪnˈtɜːnl kəmˈbʌstʃn ˈendʒɪn/

∇ **catalytic converter** 催化转化器  
/ˌkætəˈlɪtɪk kənˈvɜːtə/

Biology

Topics 6–7 · Nucleic acids and protein synthesis, Transport in plants

↻ **base pair** 碱基对  
/beɪs peə/

↕ **antiparallel** 反平行  
/ˌæntɪˈpærəlel/

📄 **semi-conservative replication** 半保留复制  
/ˌsemi kənˈsɜːvətɪv ˌreplɪˈkeɪʃn/

🧬 **polymerase** 聚合酶  
/ˌpɒlɪməˈreɪz/

→ **leading strand** 前导链  
/ˈliːdɪŋ strænd/

← **lagging strand** 后随链  
/ˈlæɡɪŋ strænd/

↻ **ligase** 连接酶  
/ˈlɪɡeɪs/

{ } **triplet** 三联体  
/ˈtrɪplɪt/

|                                                                                                                         |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>codon</b> 密码子                      |  |  |  |
| <small>/ˈkəʊdɒn/</small>                                                                                                |  |  |  |
|  <b>transcription</b> 转录               |  |  |  |
| <small>/ˈtrænzˈskrɪpʃn/</small>                                                                                         |  |  |  |
|  <b>template strand</b> 模板链            |  |  |  |
| <small>/ˈtempleɪt strænd/</small>                                                                                       |  |  |  |
|  <b>non-transcribed strand</b><br>非转录链 |  |  |  |
| <small>/nɒn trænˈskraɪbd strænd/</small>                                                                                |  |  |  |
|  <b>primary transcript</b> 初级<br>转录本   |  |  |  |
| <small>/ˈpraɪməri ˈtrænskript/</small>                                                                                  |  |  |  |
| ✓ <b>exon</b> 外显子                                                                                                       |  |  |  |
| <small>/egˈzɒn/</small>                                                                                                 |  |  |  |
|  <b>intron</b> 内含子                     |  |  |  |
| <small>/ɪnˈtrɒn/</small>                                                                                                |  |  |  |
|  <b>translation</b> 翻译                 |  |  |  |
| <small>/ˈtrænzˈleɪʃn/</small>                                                                                           |  |  |  |
|  <b>anticodon</b> 反密码子                 |  |  |  |
| <small>/ˌæntɪˈkəʊdɒn/</small>                                                                                           |  |  |  |
|  <b>mutation</b> 突变                    |  |  |  |
| <small>/mjuːˈteɪʃn/</small>                                                                                             |  |  |  |
|  <b>substitution</b> 替换                |  |  |  |
| <small>/ˌsʌbstɪˈtjuːʃn/</small>                                                                                         |  |  |  |
|  <b>deletion</b> 缺失                  |  |  |  |
| <small>/dɪˈliːʃn/</small>                                                                                               |  |  |  |
| + <b>insertion</b> 插入                                                                                                   |  |  |  |
| <small>/ɪnˈsɜːʃn/</small>                                                                                               |  |  |  |
|  <b>xylem</b> 木质部                    |  |  |  |
| <small>/ˈzaɪləm/</small>                                                                                                |  |  |  |
|  <b>mineral ion</b> 矿物离子             |  |  |  |
| <small>/ˈmɪnərəl ˈaɪən/</small>                                                                                         |  |  |  |

|                                                                                                                             |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <b>Mathematics</b>                                                                                                          |  |  |  |
| <i>Topic 4 · Mechanics</i>                                                                                                  |  |  |  |
|  <b>resultant</b> 合力                     |  |  |  |
| <small>/rɪˈzʌltənt/</small>                                                                                                 |  |  |  |
|  <b>equilibrium</b> 平衡                   |  |  |  |
| <small>/ˌɪkwɪˈlɪbrɪəm/</small>                                                                                              |  |  |  |
|  <b>contact force</b> 接触力                |  |  |  |
| <small>/ˈkɒntækt fɔːs/</small>                                                                                              |  |  |  |
|  <b>normal reaction</b> 法向反作<br>用力       |  |  |  |
| <small>/ˈnɔːml rɪˈækʃn/</small>                                                                                             |  |  |  |
|  <b>friction</b> 摩擦力                     |  |  |  |
| <small>/ˈfrɪkʃn/</small>                                                                                                    |  |  |  |
|  <b>limiting friction</b> 最大静摩<br>擦力     |  |  |  |
| <small>/ˈlɪmɪtɪŋ ˈfrɪkʃn/</small>                                                                                           |  |  |  |
|  <b>coefficient of friction</b> 摩<br>擦系数 |  |  |  |
| <small>/ˌkəʊɪˈfɪʃənt ɒv ˈfrɪkʃn/</small>                                                                                    |  |  |  |
|  <b>Newton's third law</b> 牛顿<br>第三定律    |  |  |  |
| <small>/ˈnjuːtɪnz θɜːd lɔː/</small>                                                                                         |  |  |  |
|  <b>distance</b> 距离                      |  |  |  |
| <small>/ˈdɪstəns/</small>                                                                                                   |  |  |  |
|  <b>speed</b> 速率                         |  |  |  |
| <small>/spiːd/</small>                                                                                                      |  |  |  |
| <b>Further Mathematics</b>                                                                                                  |  |  |  |
| <i>Topic 3 · Further Mechanics</i>                                                                                          |  |  |  |
|  <b>differential equation</b> 微<br>分方程 |  |  |  |
| <small>/ˌdɪfəˈrenʃl ɪˈkwetʃn/</small>                                                                                       |  |  |  |
|  <b>variable force</b> 变力              |  |  |  |
| <small>/ˈveəriəbl fɔːs/</small>                                                                                             |  |  |  |

|                                                                                                                           |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>conservation of momentum</b> 动量守恒    |  |  |  |
| <i>/kɒnsəˈveɪʃn ɒv məʊˈmentəm/</i>                                                                                        |  |  |  |
|  <b>Newton's experimental law</b> 牛顿实验定律 |  |  |  |
| <i>/ˈnjuːtntz ɛkˌsperɪˈmentl lɔː/</i>                                                                                     |  |  |  |
|  <b>coefficient of restitution</b> 恢复系数  |  |  |  |
| <i>/ˌkəʊɪˈfɪʃnt ɒv rɪstɪˈtjuːʃn/</i>                                                                                      |  |  |  |

Computer Science

Topics 8–9 · Databases, Algorithm Design and Problem-solving

|                                                                                                                            |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>transactions</b> 事务                   |  |  |  |
| <i>/trænˈsækʃnz/</i>                                                                                                       |  |  |  |
|  <b>views</b> 视图                          |  |  |  |
| <i>/vjuːz/</i>                                                                                                             |  |  |  |
|  <b>SQL</b> 结构化查询语言                       |  |  |  |
| <i>/ˌes ˈkjuː ˈel/</i>                                                                                                     |  |  |  |
|  <b>Data Definition Language</b> 数据定义语言   |  |  |  |
| <i>/ˈdeɪtə ˌdefɪˈnɪʃn ˈlæŋɡwɪdʒ/</i>                                                                                       |  |  |  |
|  <b>Data Manipulation Language</b> 数据操纵语言 |  |  |  |
| <i>/ˈdeɪtə mænɪpjʊˈleɪʃn ˈlæŋɡwɪdʒ/</i>                                                                                    |  |  |  |
|  <b>query</b> 查询                        |  |  |  |
| <i>/ˈkwɪəri/</i>                                                                                                           |  |  |  |
|  <b>join</b> 连接                         |  |  |  |
| <i>/dʒɔɪn/</i>                                                                                                             |  |  |  |
|  <b>aggregate functions</b> 聚合函数        |  |  |  |
| <i>/ægrɪgeɪt ˈfʌŋkʃnz/</i>                                                                                                 |  |  |  |
|  <b>tuple</b> 元组                        |  |  |  |
| <i>/ˈtuːpl/</i>                                                                                                            |  |  |  |
|  <b>attribute</b> 属性                    |  |  |  |
| <i>/ˈætrɪbjʊt/</i>                                                                                                         |  |  |  |

|                                                                                                                        |  |  |  |
|------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>secondary key</b> 次键            |  |  |  |
| <i>/ˈsekəndəri kiː/</i>                                                                                                |  |  |  |
|  <b>indexing</b> 索引                 |  |  |  |
| <i>/ˈɪndeksɪŋ/</i>                                                                                                     |  |  |  |
|  <b>data management</b> 数据管理        |  |  |  |
| <i>/ˈdeɪtə ˈmænɪdʒmənt/</i>                                                                                            |  |  |  |
|  <b>data modelling</b> 数据建模         |  |  |  |
| <i>/ˈdeɪtə ˈmɒdəlɪŋ/</i>                                                                                               |  |  |  |
|  <b>logical schema</b> 逻辑模式         |  |  |  |
| <i>/ˈlɒdʒɪkl ˈskiːmə/</i>                                                                                              |  |  |  |
|  <b>data integrity</b> 数据完整性        |  |  |  |
| <i>/ˈdeɪtə ɪnˈtegrɪti/</i>                                                                                             |  |  |  |
|  <b>data security</b> 数据安全          |  |  |  |
| <i>/ˈdeɪtə sɪˈkjʊərɪti/</i>                                                                                            |  |  |  |
|  <b>query processor</b> 查询处理<br>器   |  |  |  |
| <i>/ˈkwɪəri ˈprəʊsesə/</i>                                                                                             |  |  |  |
|  <b>developer interface</b> 开发者接口   |  |  |  |
| <i>/dɪˈveləpə ˈɪntəfeɪs/</i>                                                                                           |  |  |  |
|  <b>computational thinking</b> 计算思维 |  |  |  |
| <i>/kəmˈpjʊːˈteɪʃnl ˈθɪŋkɪŋ/</i>                                                                                       |  |  |  |
|  <b>abstraction</b> 抽象            |  |  |  |
| <i>/əbˈstrækʃn/</i>                                                                                                    |  |  |  |
|  <b>decomposition</b> 分解          |  |  |  |
| <i>/dɪˌkɒmpəˈzɪʃn/</i>                                                                                                 |  |  |  |
|  <b>algorithm</b> 算法              |  |  |  |
| <i>/ˈælgərɪθəm/</i>                                                                                                    |  |  |  |
|  <b>unambiguous</b> 无歧义           |  |  |  |
| <i>/ʌnæmˈbɪɡjuəs/</i>                                                                                                  |  |  |  |
|  <b>deterministic</b> 确定性         |  |  |  |
| <i>/dɪˌtɜːmɪˈnɪstɪk/</i>                                                                                               |  |  |  |

|                                                                                                                |       |       |       |
|----------------------------------------------------------------------------------------------------------------|-------|-------|-------|
|  <b>identifier table</b> 标识符表 | _____ | _____ | _____ |
| <small>/aɪ'dentɪfaɪə 'teɪbl/</small>                                                                           |       |       |       |
|  <b>variable</b> 变量           | _____ | _____ | _____ |
| <small>/ˈveəriəbl/</small>                                                                                     |       |       |       |
|  <b>data type</b> 数据类型        | _____ | _____ | _____ |
| <small>/ˈdeɪtə taɪp/</small>                                                                                   |       |       |       |

Economics

Topic 4 · The macroeconomy

|                                                                                                                           |       |       |       |
|---------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|
|  <b>distribution</b> 分配                  | _____ | _____ | _____ |
| <small>/ˌdɪstrɪ'bjuːʃn/</small>                                                                                           |       |       |       |
|  <b>informal economy</b> 非正规经济           | _____ | _____ | _____ |
| <small>/ɪn'fɔːml ɪ'kɒnəmi/</small>                                                                                        |       |       |       |
|  <b>circular flow of income</b><br>收入循环流 | _____ | _____ | _____ |
| <small>/ˈsɜːkjələ fləʊ ɒv 'ɪŋkəm/</small>                                                                                 |       |       |       |
|  <b>household</b> 家庭                     | _____ | _____ | _____ |
| <small>/ˈhaʊshaʊld/</small>                                                                                               |       |       |       |
|  <b>leakages</b> 漏出                      | _____ | _____ | _____ |
| <small>/ˈliːkɪdʒɪz/</small>                                                                                               |       |       |       |
|  <b>saving</b> 储蓄                        | _____ | _____ | _____ |
| <small>/ˈseɪvɪŋ/</small>                                                                                                  |       |       |       |
|  <b>taxation</b> 税收                    | _____ | _____ | _____ |
| <small>/tæks'eɪʃn/</small>                                                                                                |       |       |       |
|  <b>imports</b> 进口                     | _____ | _____ | _____ |
| <small>/ɪm'pɔːts/</small>                                                                                                 |       |       |       |
|  <b>injections</b> 注入                  | _____ | _____ | _____ |
| <small>/ɪn'dʒekʃnz/</small>                                                                                               |       |       |       |
|  <b>investment</b> 投资                  | _____ | _____ | _____ |
| <small>/ɪn'vestmənt/</small>                                                                                              |       |       |       |
|  <b>government spending</b> 政府支出       | _____ | _____ | _____ |
| <small>/ˈgʌvənmənt 'spendɪŋ/</small>                                                                                      |       |       |       |

|                                                                                                                 |       |       |       |
|-----------------------------------------------------------------------------------------------------------------|-------|-------|-------|
|  <b>exports</b> 出口           | _____ | _____ | _____ |
| <small>/ˈeksɔːts/</small>                                                                                       |       |       |       |
|  <b>closed economy</b> 封闭经济  | _____ | _____ | _____ |
| <small>/kləʊzd ɪ'kɒnəmi/</small>                                                                                |       |       |       |
|  <b>open economy</b> 开放经济    | _____ | _____ | _____ |
| <small>/ˈəʊpən ɪ'kɒnəmi/</small>                                                                                |       |       |       |
|  <b>aggregate demand</b> 总需求 | _____ | _____ | _____ |
| <small>/ˈægrɪgeɪt dɪ'mænd/</small>                                                                              |       |       |       |