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# Morning Reading

Grade 10 · Week 7

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*Read each word aloud, then copy the English word three times.*

## Reading

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*Read the passage aloud twice.*

Why does a straw look bent in a glass of water? Light changes direction when it moves from water into air. This is **refraction**. Glasses and cameras use a **converging lens** to bend light and make a clear **real image**. The distance from the lens to its **principal focus** is the **focal length**. Even the internet uses light: an **optical fibre** is a thin glass thread that carries light signals under the sea. The light cannot escape, because it always hits the wall of the fibre at more than the **critical angle**.

A computer is two things working together. **Hardware** is the physical machine you can touch. **Software** is the **programs** that tell it what to do. The most important program is the **operating system**: it starts the computer, manages memory, and runs your apps.

Markets are useful, but they are not perfect. A factory may make cheap toys but dirty the river. The factory pays its **private cost**, yet the village pays an **external cost**. Together these make the **social cost**. Economists call this **market failure**.

*Talk about it :*

1. Where have you seen refraction this week? Describe it.
2. A firework factory moves next to your school. What external costs does it bring?

# Physics

Topics 2–3 · Thermal physics, Waves

☞ thermal radiation

/ˈθɜːml ˌreɪdɪˈeɪʃn/

↔ thermal expansion

/ˈθɜːml ɛkˈspænjən/

✂ absolute zero

/ˈæbsəluːt ˈziərəʊ/

↻ Brownian motion

/ˈbraʊniən ˈməʊʃn/

✂ kelvin

/ˈkelvɪn/

🔍 specific heat capacity

/spəˈsɪfɪk hiːt kəˈpæsɪti/

☁ evaporation

/ɪˌvæpəˈreɪʃn/

❄ cools down

/kuːlz daʊn/

⚡ conduction

/kənˈdʌkʃn/

🔗 delocalised electrons

/dɪˈlɒkəlaɪzd ɪˈlektɹɒnz/

≡ convection

/kənˈvekʃn/

🔗 infrared

/ˌɪnfɹəˈred/

○ dull

/dʌl/

☉ emitter

/ɪˈmɪtə/

☑ absorber

/əbˈsɔːbə/

|                                                                                                                                      |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>reflector</b><br>/rɪ'flektə/                    |  |  |  |
|  <b>wave</b><br>/weɪv/                              |  |  |  |
|  <b>wave speed</b><br>/weɪv spi:d/                  |  |  |  |
|  <b>transverse wave</b><br>/træns'vɜ:s weɪv/        |  |  |  |
|  <b>longitudinal wave</b><br>/ˌlɒŋɡɪ'tju:dɪnl weɪv/ |  |  |  |
|  <b>wavefront</b><br>/'weɪvfrʌnt/                   |  |  |  |
|  <b>wavelength</b><br>/'weɪvleŋθ/                   |  |  |  |
|  <b>frequency</b><br>/'fri:kwənsi/                 |  |  |  |

## Chemistry

*Topics 4–10 · Electrochemistry, Chemical energetics, Chemistry of the environment*

|                                                                                                                                    |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>bromine</b><br>/'brəʊmaɪn/                  |  |  |  |
|  <b>chlorine</b><br>/'klɔ:rɪn/                  |  |  |  |
|  <b>sulfuric acid</b><br>/sʌl'fjʊərɪk 'æsɪd/    |  |  |  |
|  <b>oxygen</b><br>/'ɒksɪdʒɪn/                   |  |  |  |
|  <b>external circuit</b><br>/ek'stɜ:nl 'sɜ:kɪt/ |  |  |  |
|  <b>reduction</b><br>/rɪ'dʌkʃn/                 |  |  |  |
|  <b>oxidation</b><br>/ˌɒksɪ'deɪʃn/              |  |  |  |

÷ **half-equation**

/ha:f i'kweɪʒn/

💎 **copper**

/'kɒpə/

📦 **electroplating**

/ɪˌlektərəʊ'pleɪtɪŋ/

🗑️ **corrosion**

/kə'reʊʒn/

🏭 **pollutants**

/pə'lʊtənts/

🧬 **cancer**

/'kænsə/

🔥 **exothermic reaction**

/egzə'ðɜ:mɪk rɪ'ækʃn/

❄️ **endothermic reaction**

/ˌendəʊ'θɜ:mɪk rɪ'ækʃn/

📈 **reaction pathway diagram**

/rɪ'ækʃn 'pæθweɪ 'daɪəgræm/

⚡ **activation energy**

/ˌæktɪ'veɪʃn 'enədʒi/

🔗 **bond energy**

/bɒnd 'enədʒi/

🔪 **bond breaking**

/bɒnd 'breɪkɪŋ/

🔗 **bond making**

/bɒnd 'meɪkɪŋ/

🏠 **surroundings**

/sə'reʊndɪŋz/

🔥 **combustion**

/kəm'bʌstʃn/

# Biology

## Topic 7 · Human nutrition

↓ **rectum**

/ˈrektəm/

⊙ **anus**

/ˈeɪnəs/

💧 **salivary glands**

/ˈsælɪvəri glændz/

🌀 **pancreas**

/ˈpæŋkriəs/

🛡️ **liver**

/ˈlɪvə/

💧 **gall bladder**

/ɡɔːl ˈblædə/

⬇️ **ingestion**

/ɪnˈdʒestʃn/

🍏 **nutrients**

/ˈnjuːtriənts/

→| **assimilation**

/əˌsɪmɪˈleɪʃn/

🗑️ **egestion**

/ɪˈdʒestʃn/

🗑️ **faeces**

/ˈfiːsiːz/

😊 **teeth**

/tiːθ/

✂️ **incisors**

/ɪnˈsaɪzəz/

△ **canines**

/ˈkeɪnənz/

□ **premolars**

/priːˈməʊləz/

|                                                                                                                                         |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>molars</b><br>/'məʊləz/                            |  |  |  |
|  <b>enamel</b><br>/'næmə/                              |  |  |  |
|  <b>dentine</b><br>/'denti:n/                          |  |  |  |
|  <b>pulp</b><br>/pʌlp/                                 |  |  |  |
|  <b>nerves</b><br>/nɜ:vz/                              |  |  |  |
|  <b>blood vessels</b><br>/blʌd 'veslz/                 |  |  |  |
|  <b>cement</b><br>/si'ment/                            |  |  |  |
|  <b>gums</b><br>/gʌmz/                                 |  |  |  |
|  <b>bile</b><br>/baɪ/                                |  |  |  |
|  <b>emulsifies</b><br>/'mʌlsɪfaɪz/                   |  |  |  |
|  <b>lipase</b><br>/'lɪpeɪs/                          |  |  |  |
|  <b>insoluble</b><br>/ɪn'sɒljʊ:bl/                   |  |  |  |
|  <b>soluble</b><br>/'sɒljʊ:bl/                       |  |  |  |
|  <b>amylase</b><br>/'æmɪleɪz/                        |  |  |  |
|  <b>protease</b><br>/'prəʊteɪs/                      |  |  |  |
|  <b>hydrochloric acid</b><br>/ˌhaɪdrə'klɔ:rɪk 'æsɪd/ |  |  |  |
|  <b>gastric juice</b><br>/'gæstrɪk dʒu:s/            |  |  |  |

|                                                                                                                                  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>microorganisms</b><br>/ˌmaɪkrəʊ'ɔːɡənɪzəmz/ |  |  |  |
|  <b>acidic</b><br>/ə'sɪdɪk/                     |  |  |  |
|  <b>maltose</b><br>/'mɒltəʊs/                   |  |  |  |
|  <b>maltase</b><br>/'mɒlteɪs/                   |  |  |  |
|  <b>epithelium</b><br>/ˌepɪ'thiːliəm/           |  |  |  |

## Mathematics

*Topic 2 · Algebra and graphs*

|                                                                                                                                             |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>cubic</b><br>/'kjuːbɪk/                                |  |  |  |
|  <b>exponential sequence</b><br>/ˌekspə'nɛnʃl 'siːkwəns/ |  |  |  |
|  <b>direct proportion</b><br>/daɪ'rekt prə'pɔːʃn/        |  |  |  |
|  <b>constant</b><br>/'kɒnstənt/                          |  |  |  |
|  <b>inverse proportion</b><br>/ɪn'vɜːs prə'pɔːʃn/        |  |  |  |
|  <b>gradient</b><br>/'greɪdɪənt/                         |  |  |  |
|  <b>rate of change</b><br>/reɪt ɒv tʃeɪndʒ/              |  |  |  |
|  <b>travel graph</b><br>/'trævl græf/                    |  |  |  |
|  <b>conversion graph</b><br>/kən'vɜːʃn græf/             |  |  |  |
|  <b>acceleration</b><br>/ək'selə'reɪʃn/                  |  |  |  |

|                                                                                                                                  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>deceleration</b><br>/diˌselə'reɪʃn/         |  |  |  |
|  <b>distance</b><br>/'dɪstəns/                  |  |  |  |
|  <b>table of values</b><br>/'teɪbl ðv 'væljuːz/ |  |  |  |
|  <b>coordinates</b><br>/kəʊ'ɔːdɪnəts/           |  |  |  |
| <b>+ axis</b><br>/'æksɪs/                                                                                                        |  |  |  |
|  <b>roots</b><br>/ruːts/                        |  |  |  |
| <b>× intersection point</b><br>/ˌɪntə'sekʃn pɔɪnt/                                                                               |  |  |  |

## Computer Science

### Topic 4 · Software

|                                                                                                                                     |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>Hardware</b><br>/'hɑːdweə/                   |  |  |  |
|  <b>physical</b><br>/'fɪzɪkl/                    |  |  |  |
|  <b>Software</b><br>/'sɒftweə/                   |  |  |  |
| <b>&lt;&gt; programs</b><br>/'prəʊgræmz/                                                                                            |  |  |  |
|  <b>System software</b><br>/'sɪstəm 'sɒftweə/    |  |  |  |
|  <b>operating system</b><br>/'ɒpəreɪtɪŋ 'sɪstəm/ |  |  |  |
|  <b>compiler</b><br>/kəm'paɪlə/                  |  |  |  |
|  <b>linker</b><br>/'lɪŋkə/                       |  |  |  |

|                                                                                                                                                                |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>device driver</b><br><i>/di'vaɪs 'draɪvə/</i>                             |  |  |  |
|  <b>utility software</b><br><i>/ju:'tɪlɪti 'sɒftweə/</i>                      |  |  |  |
|  <b>Application software</b><br><i>/,æplɪ'keɪʃn 'sɒftweə/</i>                 |  |  |  |
|  <b>word processing</b><br><i>/wɜ:d 'prəʊsesɪŋ/</i>                           |  |  |  |
|  <b>spreadsheet</b><br><i>/'spredʃi:t/</i>                                    |  |  |  |
|  <b>database management system</b><br><i>/'deɪtəbeɪs 'mænɪdʒmənt 'sɪstəm/</i> |  |  |  |
|  <b>web browser</b><br><i>/web 'braʊzə/</i>                                   |  |  |  |
|  <b>user interface</b><br><i>/'ju:zə 'ɪntəfeɪs/</i>                         |  |  |  |
|  <b>peripherals</b><br><i>/pə'rɪfərəlz/</i>                                 |  |  |  |
|  <b>multitasking</b><br><i>/'mʌltɪtæskɪŋ/</i>                               |  |  |  |
|  <b>platform</b><br><i>/'plætfɔ:m/</i>                                      |  |  |  |
|  <b>interrupt</b><br><i>/'ɪntəʁəpt/</i>                                     |  |  |  |

## Economics

*Topic 2 · The allocation of resources*

|                                                                                                                                          |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>external cost</b><br><i>/ek'stɜ:nəl kɒst/</i>     |  |  |  |
|  <b>social cost</b><br><i>/'səʊʃl kɒst/</i>           |  |  |  |
|  <b>private benefit</b><br><i>/'praɪvət 'benɪfɪt/</i> |  |  |  |

|                                                                                                                                   |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>external benefit</b><br>/ek'stɜːnl 'benɪfɪt/ |  |  |  |
|  <b>social benefit</b><br>/'səʊʃl 'benɪfɪt/      |  |  |  |
|  <b>merit goods</b><br>/'merɪt ɡʊdz/             |  |  |  |
|  <b>demerit goods</b><br>/'demərɪt ɡʊdz/         |  |  |  |
|  <b>public goods</b><br>/'pʌblɪk ɡʊdz/           |  |  |  |
|  <b>monopoly</b><br>/mə'nɒpəli/                  |  |  |  |
|  <b>mixed economy</b><br>/mɪkst ɪ'kɒnəmi/        |  |  |  |
|  <b>private sector</b><br>/'praɪvət 'sektə/     |  |  |  |
|  <b>public sector</b><br>/'pʌblɪk 'sektə/      |  |  |  |
|  <b>intervention</b><br>/ɪntə'venʃn/           |  |  |  |
|  <b>maximum price</b><br>/'mæksɪməm praɪs/     |  |  |  |

## English

Topic 3 · Writing an informal email

|                                                                                                                        |  |  |  |
|------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  <b>tone</b><br>/təʊn/              |  |  |  |
|  <b>greeting</b><br>/'griːtɪŋ/      |  |  |  |
|  <b>closing</b><br>/'kləʊzɪŋ/       |  |  |  |
|  <b>short forms</b><br>/ʃɔːt fɔːmz/ |  |  |  |

**developed**

/dɪˈveləpt/

\_\_\_\_\_

**reason**

/ˈriːzn/

\_\_\_\_\_