

Morning Reading

Grade 11 · AS · Week 9

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

Reading

Read the passage aloud twice.

Stretch a spring gently and it returns to its original length when you let go: the behaviour is **elastic**. **Hooke’s law** says the **extension** is proportional to the **load**, and the **spring constant** measures the stiffness. Pull too far, past the **limit of proportionality**, and finally the spring deforms permanently: it has become **plastic**. Springs hide everywhere: in pens, mattresses, keyboards and car suspensions.

A factory beside a river makes cheap paint but releases waste into the water. The firm counts only its **private cost**; the fishermen downstream carry the **external cost**. Economists call the fishermen a **third party**, and the pollution a **negative externality**. Add private and external together and you get the true **social cost** of the paint, which the market price ignores. This is why governments tax pollution.

Programmers met translators this week. A **compiler** converts the whole program into machine code once, producing a fast **executable**; an **interpreter** translates line by line, which is slower but easier for testing.

Talk about it :

1. Name three objects you used today that contain a spring.
2. A neighbour plays loud music at midnight. Explain this as an externality.

Physics

Topics 6–7 · Deformation of solids, Waves

 micrometer <i>/maɪˈkrɒmɪtə/</i>			
 elastic limit <i>/ɪˈlæstɪk ˈlɪmɪt/</i>			
 wave <i>/weɪv/</i>			
 medium <i>/'miːdiəm/</i>			
 oscillate <i>/'ɒsɪleɪt/</i>			
 transverse wave <i>/trænsˈvɜːs weɪv/</i>			
 longitudinal wave <i>./lɒŋgɪˈtʃuːdɪnəl weɪv/</i>			
 progressive wave <i>/prəˈɡresɪv weɪv/</i>			
 amplitude <i>/'æmplɪtjuːd/</i>			
 wavelength <i>/'weɪvlɛŋθ/</i>			
 in phase <i>/ɪn feɪz/</i>			
 crest <i>/krest/</i>			
 period <i>/'piəriəd/</i>			
 frequency <i>/'friːkwənsi/</i>			
 hertz <i>/hɜːts/</i>			
 phase difference <i>/feɪz ˈdɪfrəns/</i>			

 radian			
<i>/ˈreɪdiən/</i>			
 propagate			
<i>/ˈprɒpəgeɪt/</i>			
 cathode-ray oscilloscope			
<i>/ˈkæθəʊd reɪ ɒˈsɪləskəʊp/</i>			

Chemistry

Topics 5–7 · *Chemical energetics, Electrochemistry, Equilibria*

 specific heat capacity			
<i>/spəˈsɪfɪk hiːt kəˈpæsɪti/</i>			
 Hess's law			
<i>/ˈhesɪz lɔː/</i>			
 energy cycle			
<i>/ˈenədʒi ˈsaɪkl/</i>			
 redox			
<i>/rɪˈdɒks/</i>			
 oxidation			
<i>/ˌɒksɪˈdeɪʃn/</i>			
 reduction			
<i>/rɪˈdʌkʃn/</i>			
 electron transfer			
<i>/ɪˈlektroʊn ˈtrænsfɜː/</i>			
 disproportionation			
<i>/ˌdɪsprəˈpɔːʃəneɪʃn/</i>			
 oxidising agent			
<i>/ˈɒksɪdaɪzɪŋ ˈeɪdʒənt/</i>			
 reducing agent			
<i>/rɪˈdjuːsɪŋ ˈeɪdʒənt/</i>			
 reversible reaction			
<i>/rɪˈvɜːsɪbl rɪˈækʃn/</i>			

 forward reaction			
<i>/ˈfɔːwəd rɪˈækʃn/</i>			
 reverse reaction			
<i>/rɪˈvɜːs rɪˈækʃn/</i>			
 closed system			
<i>/klaʊzd ˈsɪstəm/</i>			
 dynamic equilibrium			
<i>/daɪˈnæmɪk ˌɪːkwɪˈlɪbrɪəm/</i>			
 Le Chatelier's principle			
<i>/lə ˈtʃetliəz ˈprɪnsɪpl/</i>			
 equilibrium			
<i>/ˌɪːkwɪˈlɪbrɪəm/</i>			
 catalyst			
<i>/ˈkætəlɪst/</i>			

Biology

Topic 4 · *Cell membranes and transport*

 glycoprotein			
<i>/ˈɡlaɪkəprəʊtɪːn/</i>			
 antigen			
<i>/ˈæntɪdʒen/</i>			
 stability			
<i>/stəˈbɪlɪti/</i>			
 permeability			
<i>/ˌpɜːməˈbɪlɪti/</i>			
 partially permeable membrane			
<i>/ˈpɑːʃəli ˈpɜːməbl ˈmembreɪn/</i>			
 cell signalling			
<i>/sel ˈsɪgnəlɪŋ/</i>			
 ligand			
<i>/ˈlɪɡənd/</i>			

 hormone <i>/ˈhɔːməʊn/</i>			
 target cell <i>/ˈtɑːɡɪt sel/</i>			
 receptor <i>/rɪˈseptə/</i>			
 passive <i>/ˈpæsɪv/</i>			
 diffusion <i>/dɪˈfjuːʒn/</i>			
 simple diffusion <i>/ˈsɪmpl dɪˈfjuːʒn/</i>			
 concentration gradient <i>/ˌkɒnsənˈtreɪʃn ˈɡreɪdɪənt/</i>			
 carbon dioxide <i>/ˈkɑːbən daɪˈɒksaɪd/</i>			
 ion <i>/ˈaɪən/</i>			
 facilitated diffusion <i>/fəˈsɪlɪteɪtɪd dɪˈfjuːʒn/</i>			
 active transport <i>/ˈæktɪv ˈtrænsˌpɔːt/</i>			
 endocytosis <i>/ˌendəʊsɪˈtaʊsɪs/</i>			
 exocytosis <i>/egˌzɒsɪˈtaʊsɪs/</i>			
 volume <i>/ˈvɒljʊːm/</i>			
 surface area <i>/ˈsɜːfɪs ˈeəriə/</i>			
 agar <i>/ˈeɪɡɑː/</i>			

Mathematics			
<i>Topic 2 · Pure Mathematics 2</i>			
 degree <i>/dɪˈɡriː/</i>			
 quotient <i>/ˈkwɒʃjənt/</i>			
 remainder <i>/rɪˈmeɪndə/</i>			
 remainder theorem <i>/rɪˈmeɪndə ˈθɪərəm/</i>			
 factor theorem <i>/ˈfæktə ˈθɪərəm/</i>			
 indices <i>/ˈɪndɪsɪz/</i>			
 laws of logarithms <i>/ləːz ɒv ˈlɒɡərɪθəməz/</i>			
 natural logarithm <i>/ˈnætʃərəl ˈlɒɡərɪθəm/</i>			
 linear form <i>/ˈlɪniə ˈfɔːm/</i>			
 secant <i>/ˈsiːkənt/</i>			
Further Mathematics			
<i>Topic 3 · Further Mechanics</i>			
 Cartesian equation <i>/kɑːˈtiːziən ɪˈkweɪʒn/</i>			
 trajectory <i>/trəˈdʒektəri/</i>			

 moment			
<i>/ˈməʊmənt/</i>			
 centre of mass			
<i>/ˈsentrə ɒv mæs/</i>			
 symmetry			
<i>/ˈsɪmətri/</i>			

Computer Science

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

 spyware			
<i>/ˈspaɪweə/</i>			
 ransomware			
<i>/ˈrænsəmweə/</i>			
 adware			
<i>/ˈædweə/</i>			
 phishing			
<i>/ˈfɪʃɪŋ/</i>			
 hacking			
<i>/ˈhækɪŋ/</i>			
 denial of service			
<i>/dɪˈnaɪəl ɒv ˈsɜːvɪs/</i>			
 eavesdropping			
<i>/ˈiːvzdrɒpɪŋ/</i>			
 man-in-the-middle			
<i>/mæn ɪnðə ˈmɪdl/</i>			
 social engineering			
<i>/ˈsəʊʃl ˌendʒɪˈniəriŋ/</i>			
 encryption			
<i>/enˈkrɪptʃn/</i>			
 audit logs			
<i>/ˈɔːdɪt lɒgz/</i>			

 VPN			
<i>/ˌviː piː ˈen/</i>			
 authentication			
<i>/ɔːθentiˈkeɪʃn/</i>			
 two-factor authentication			
<i>/tuː ˈfæktə ɔːθentiˈkeɪʃn/</i>			
 authorisation			
<i>/ɔːθərəɪˈzeɪʃn/</i>			
 least-privilege			
<i>/liːst ˈprɪvɪlɪdʒ/</i>			
 plaintext			
<i>/ˈpleɪntekst/</i>			
 ciphertext			
<i>/ˈsaɪfətekst/</i>			
 Symmetric encryption			
<i>/sɪˈmetrɪk enˈkrɪptʃn/</i>			
 asymmetric encryption			
<i>/ˌeɪsɪˈmetrɪk enˈkrɪptʃn/</i>			
 public key			
<i>/ˈpʌblɪk kiː/</i>			
 private key			
<i>/ˈpraɪvət kiː/</i>			
 access control			
<i>/ˈæksəs kənˈtraʊl/</i>			
 validation			
<i>/ˌvæɪlɪˈdeɪʃn/</i>			
 check digit			
<i>/tʃek ˈdɪdʒɪt/</i>			
 verification			
<i>/ˌverɪfɪˈkeɪʃn/</i>			
 parity check			
<i>/ˈpærɪti tʃek/</i>			

Σ

checksum

/ˈtʃɛksəm/

Economics

Topic 3 · Government microeconomic intervention

🔊

externality

/ekˈstɜːnəli/

👤

third party

/θɜːd ˈpɑːti/

🔊

negative externality

/ˈnegətɪv ekˈstɜːnəli/

🏢

external cost

/ekˈstɜːnl kɒst/

👤

social cost

/ˈsəʊʃl kɒst/

💵

private cost

/ˈpraɪvət kɒst/

🌟

positive externality

/ˈpɒzɪtɪv ekˈstɜːnəli/

🌟

external benefit

/ekˈstɜːnl ˈbenɪfɪt/

👑

monopoly

/məˈnɒpəli/

👑

monopoly power

/məˈnɒpəli ˈpaʊə/

⚖️

inequality

/ɪniːˈkwɒləti/

🔍

asymmetric information

/ˌeɪsɪˈmetrɪk ˌɪnfəˈmeɪʃn/

💵

indirect tax

/ɪndaɪˈrekt tæks/

↗️

incidence of a tax

/ˈɪnsɪdəns əvə tæks/

⬇️

maximum price

/ˈmæksɪməm praɪs/

⬆️

minimum price

/ˈmɪnɪməm praɪs/