

Morning Reading

Grade 11 · AS · Week 12

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

Reading

Read the passage aloud twice.

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

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			

	fringe spacing /frɪndʒ 'speɪsɪŋ/		
	fringe /frɪndʒ/		
	maximum /ˈmæksɪmə/		
	minimum /ˈmɪnɪmə/		
	diffraction grating /dɪˈfrækʃn 'greɪtɪŋ/		
	normal /ˈnɔːml/		
	slit spacing /slɪt 'speɪsɪŋ/		
	order /ˈɔːdə/		
	electric current /ɪˈlektɹɪk 'kʌrənt/		
	charge carrier /tʃɑːdʒ 'kæriə/		
	electron /ɪˈlektɹon/		
	electrolyte /ɪˈlektɹəlaɪt/		
	ion /ˈaɪən/		
	semiconductor /ˌsemɪkənˈdʌktə/		
	hole /həʊl/		
	conventional current /kənˈvenʃənəl 'kʌrənt/		

 quantised			
<i>/ˈkwɒntaɪzd/</i>			
 elementary charge			
<i>/ˌeliˈmentəri tʃɑːdʒ/</i>			

Chemistry

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

 carbonate			
<i>/ˈkɑːbəneɪt/</i>			
 thermal decomposition			
<i>/ˈθɜːml ˌdiːkɒmpəˈzɪʃn/</i>			
 nitrate			
<i>/ˈnaɪtreɪt/</i>			
 thermal stability			
<i>/ˈθɜːml stəˈbɪləti/</i>			
 halogen			
<i>/ˈhælədʒn/</i>			
 volatility			
<i>/ˌvɒləˈtɪləti/</i>			
 hydrogen halide			
<i>/ˈhaɪdrədʒn ˈhælaɪd/</i>			
 halide ion			
<i>/ˈhælaɪd ˈaɪən/</i>			
 ammonia			
<i>/æˈmɒniə/</i>			
 precipitate			
<i>/prɪˈsɪpeɪt/</i>			
 water purification			
<i>/ˈwɔːtə ˌpjʊərɪfɪˈkeɪʃn/</i>			
 bacteria			
<i>/bækˈtɪəriə/</i>			

 triple bond			
<i>/ˈtrɪpl bɒnd/</i>			
 basicity			
<i>/beɪˈsɪsɪti/</i>			

 ammonium ion			
<i>/æˈmɒniəm ˈaɪən/</i>			

 displacement			
<i>/dɪˈspleɪsmənt/</i>			

 internal combustion engine			
<i>/ɪnˈtɜːnl kəmˈbʌstʃn ˈendʒɪn/</i>			

 catalytic converter			
<i>/ˌkætəˈlɪtɪk kənˈvɜːtə/</i>			

Biology

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

 base pair			
<i>/beɪs peə/</i>			

 antiparallel			
<i>/ˌæntɪˈpærəlel/</i>			

 semi-conservative replication			
<i>/ˈsemi kənˈsɜːvətɪv ˌreplɪˈkeɪʃn/</i>			

 polymerase			
<i>/ˌpɒlɪməˈreɪz/</i>			

 leading strand			
<i>/ˈliːdɪŋ strænd/</i>			

 lagging strand			
<i>/ˈlæŋɪŋ strænd/</i>			

 ligase			
<i>/ˈlɪgeɪs/</i>			

 triplet			
<i>/ˈtrɪplɪt/</i>			

 codon <i>/ˈkəʊdɒn/</i>			
 transcription <i>/trænˈskripʃn/</i>			
 template strand <i>/ˈtempleɪt strænd/</i>			
 non-transcribed strand <i>/nɒn trænˈskraɪbd strænd/</i>			
 primary transcript <i>/ˈpraɪməri ˈtrænskɪpt/</i>			
 exon <i>/egˈzɒn/</i>			
 intron <i>/ɪnˈtrɒn/</i>			
 translation <i>/trænˈsleɪʃn/</i>			
 anticodon <i>/æntɪˈkəʊdɒn/</i>			
 mutation <i>/mjuːˈteɪʃn/</i>			
 substitution <i>/sʌbstɪˈtjuːʃn/</i>			
 deletion <i>/dɪˈliːʃn/</i>			
 insertion <i>/ɪnˈsɜːʃn/</i>			
 xylem <i>/ˈzaɪləm/</i>			
 mineral ion <i>/ˈmɪnərəl ˈaɪɒn/</i>			

Mathematics			
<i>Topic 4 · Mechanics</i>			
 resultant <i>/rɪˈzʌltənt/</i>			
 equilibrium <i>/ɪˈkwɪˈlɪbrɪəm/</i>			
 contact force <i>/ˈkɒntækt fɔːs/</i>			
 normal reaction <i>/ˈnɔːml rɪˈækʃn/</i>			
 friction <i>/ˈfrɪkʃn/</i>			
 limiting friction <i>/ˈlɪmɪtɪŋ ˈfrɪkʃn/</i>			
 coefficient of friction <i>/ˌkəʊˈfɪʃənt ɒv ˈfrɪkʃn/</i>			
 Newton's third law <i>/ˈnjuːtɪnz θɜːd lɔː/</i>			
 distance <i>/ˈdɪstəns/</i>			
 speed <i>/spiːd/</i>			
Further Mathematics			
<i>Topic 3 · Further Mechanics</i>			
 differential equation <i>/ˌdɪfəˈrenʃl ɪˈkweɪʒn/</i>			
 variable force <i>/ˈveəriəbl fɔːs/</i>			

 conservation of momentum			
<i>/ˈkɒnsəˈveɪʃn ɒv məʊˈmentəm/</i>			
 Newton's experimental law			
<i>/ˈnjuːtntz ɛkˌsperɪˈmentl lɔː/</i>			
 coefficient of restitution			
<i>/ˈkəʊɪˈfɪʃənt ɒv rɪstɪˈtjuːʃn/</i>			

Computer Science

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

 transactions			
<i>/trænˈsækʃnz/</i>			
 views			
<i>/vjuːz/</i>			
 SQL			
<i>/es ˈkjuː ˈel/</i>			
 Data Definition Language			
<i>/'deɪtə ˌdefɪˈnɪʃn 'læŋɡwɪdʒ/</i>			
 Data Manipulation Language			
<i>/'deɪtə məˌnɪpjəʊˈleɪʃn 'læŋɡwɪdʒ/</i>			
 query			
<i>/'kwɪəri/</i>			
 join			
<i>/dʒɔɪn/</i>			
 aggregate functions			
<i>/'æɡrɪgeɪt ˈfʌŋkʃnz/</i>			
 tuple			
<i>/'tuːpl/</i>			
 attribute			
<i>/'ætrɪbjʊt/</i>			

 secondary key			
<i>/'sekəndəri kiː/</i>			
 indexing			
<i>/'ɪndeksɪŋ/</i>			
 data management			
<i>/'deɪtə ˈmænɪdʒmənt/</i>			
 data modelling			
<i>/'deɪtə ˈmɒdəlɪŋ/</i>			
 logical schema			
<i>/'lɒdʒɪkl ˈskiːmə/</i>			
 data integrity			
<i>/'deɪtə ɪnˈteɡrɪti/</i>			
 data security			
<i>/'deɪtə sɪˈkjuərti/</i>			
 query processor			
<i>/'kwɪəri ˈprəʊsesə/</i>			
 developer interface			
<i>/dɪˈveləpə ˈɪntəfeɪs/</i>			
 computational thinking			
<i>/ˌkɒmpjʊːˈteɪʃənl ˈθɪŋkɪŋ/</i>			
 abstraction			
<i>/əbˈstrækʃn/</i>			
 decomposition			
<i>/ˌdiːkɒmpəˈzɪʃn/</i>			
 algorithm			
<i>/'ælgərɪθəm/</i>			
 unambiguous			
<i>/ʌnæmˈbɪɡjuːəs/</i>			
 deterministic			
<i>/dɪˌtɜːmɪˈnɪstɪk/</i>			

 identifier table <i>/aɪ'dentɪfaɪə 'teɪbl/</i>			
 variable <i>/'veəriəbl/</i>			
 data type <i>/'deɪtə taɪp/</i>			

Economics

Topic 4 · The macroeconomy

 exports <i>/'eksports/</i>			
 closed economy <i>/kləʊzd i'kɒnəmi/</i>			
 open economy <i>/'əʊpən i'kɒnəmi/</i>			
 aggregate demand <i>/'ægrɪgeɪt dɪ'mænd/</i>			
 consumption <i>/kən'sʌmpʃn/</i>			
 net exports <i>/net 'eksports/</i>			
 aggregate supply <i>/'ægrɪgeɪt sə'plaɪ/</i>			
 short-run aggregate supply <i>/ʃɔ:t rʌn 'ægrɪgeɪt sə'plaɪ/</i>			
 long-run aggregate supply <i>/lɒŋ rʌn 'ægrɪgeɪt sə'plaɪ/</i>			
 productive capacity <i>/prə'dʌktɪv kə'pæsɪti/</i>			

 macroeconomic equilibrium <i>/,mækro,ri:kə'nɒmɪk ,ɪ:kwɪ'libriəm/</i>			
 price level <i>/praɪs 'levl/</i>			
 real output <i>/rɪəl 'aʊtpʊt/</i>			
 actual growth <i>/'æktʃʊəl grəʊθ/</i>			
 potential growth <i>/pə'tenʃl grəʊθ/</i>			
 productivity <i>/,prədʌk'tɪvɪti/</i>			