

Morning Reading

Grade 11 · AS · Week 1

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

Reading

Read the passage aloud twice.

Physics begins with careful language. A **physical quantity** has two parts: a number, its **magnitude**, and a **unit**. Saying ”the mass is 5” means nothing until you add ”kilograms”. Scientists across the world share the same **SI units**, so a result measured in Shanghai can be checked in London. Before an experiment, a good physicist will **estimate** the answer first, at least to the right **order of magnitude**, so a silly result is spotted at once.

Chemistry looks inside matter. Every **atom** has a tiny, dense **nucleus** of **protons** and **neutrons**, with **electrons** arranged in shells around it. The **proton number** defines the element: change it, and you have a different substance entirely.

Economics begins from one hard fact: **scarcity**. Our **wants** are unlimited, but **resources** are not. Every choice therefore has an **opportunity cost**, the next best thing you gave up. Choosing two hours of gaming costs you the two hours of revision you did not do.

Talk about it :

1. Estimate the mass of this worksheet, with a unit. How could you check?
2. What was the opportunity cost of coming to school today?

Physics

Topic 1 · Physical quantities and units



physical quantity

/ˈfɪzɪkl ˈkwɒntəti/



magnitude

/ˈmæɡnɪtjuːd/



unit

/juːnɪt/



estimate

/ˈestɪmət/



mass

/mæs/



weight

/weɪt/



vacuum

/ˈvækjuːm/



acceleration

/ækˌsələˈreɪʃn/



free fall

/friː fɔːl/



order of magnitude

/ˈɔːdə ɒv ˈmæɡnɪtjuːd/



SI units

/ˌes ˈaɪ ˈjuːnɪts/



base quantity

/beɪs ˈkwɒntəti/



length

/leŋθ/



current

/ˈkʌrənt/



ampere

/ˈæmpeə/

 temperature <i>/ˈtempɪtʃə/</i>			
 kelvin <i>/ˈkelvɪn/</i>			
 derived unit <i>/dɪˈraɪvd ˈjuːnɪt/</i>			
 speed <i>/spiːd/</i>			
 velocity <i>/vəˈlɒsɪti/</i>			

Chemistry

Topic 1 · Atomic structure

 atom <i>/ˈætəm/</i>			
 nucleus <i>/ˈnjuːklɪəs/</i>			
 proton <i>/ˈprəʊtɒn/</i>			
 neutron <i>/ˈnjuːtrɒn/</i>			
 electron <i>/ɪˈlektrɒn/</i>			
 shell <i>/ʃel/</i>			
 relative charge <i>/ˈrelatɪv tʃɑːdʒ/</i>			
 relative mass <i>/ˈrelatɪv mæs/</i>			
 neutral <i>/ˈnjuːtrəl/</i>			
 proton number <i>/ˈprəʊtɒn ˈnʌmbə/</i>			

 atomic number <i>/əˈtɒmɪk ˈnʌmbə/</i>			
 nucleon number <i>/ˈnjuːkliən ˈnʌmbə/</i>			
 mass number <i>/mæs ˈnʌmbə/</i>			
 nucleon <i>/ˈnjuːkliən/</i>			
 ion <i>/ˈaɪɒn/</i>			

 electric field <i>/ɪˈlektrɪk fiːld/</i>			
 deflection <i>/dɪˈfleksjən/</i>			
 atomic radius <i>/əˈtɒmɪk ˈreɪdiəs/</i>			
 ionic radius <i>/aɪˈɒnɪk ˈreɪdiəs/</i>			

Biology

Topic 1 · Cell structure

 cell <i>/sel/</i>			
 microscope <i>/ˈmaɪkrəskəʊp/</i>			
 light microscope <i>/laɪt ˈmaɪkrəskəʊp/</i>			
 specimen <i>/ˈspesɪmən/</i>			
 temporary preparation <i>/ˈtempərəri ˌprepəˈreɪʃn/</i>			
 slide <i>/slaid/</i>			

 stain			
/steɪn/			
 cover slip			
/'kʌvə slɪp/			
 magnification			
/ˌmæɡnɪfɪ'keɪʃn/			
 micrometre			
/'maɪkrəʊmɪ:tə/			
 nanometre			
/ˌnænəʊ'mi:tə/			
 chloroplast			
/'klɔːrəʊplæst/			
 photomicrograph			
/ˌfəʊtəʊ'maɪkrəgræf/			
 electron micrograph			
/ɪ'lektɹən 'maɪkrəgræf/			
 eyepiece graticule			
/'aɪpɪs 'grætɪkjuːl/			
 calibrate			
/'kælɪbreɪt/			
 stage micrometer			
/steɪdʒ maɪ'krɒmɪtə/			
 resolution			
/ˌrezə'luːʃn/			
 wavelength			
/'weɪvlɛŋθ/			
 electron microscope			
/ɪ'lektɹən 'maɪkrəskəʊp/			
 electron			
/ɪ'lektɹən/			

 scanning			
/'skænɪŋ/			
 transmission			
/træn'smɪʃn/			

Mathematics

Topic 1 · Pure Mathematics 1

 Pure Mathematics			
/pjʊə ˌmæθɪ'mætɪks/			
 algebra			
/'ældʒɪbrə/			
 calculus			
/'kælkjʊləs/			
 quadratic			
/kwɒ'drætɪk/			
 coefficient			
/ˌkəʊɪ'fɪʃənt/			
 complete the square			
/kəm'pli:t ðə skweə/			
 vertex			
/'vɜːteks/			
 discriminant			
/dɪ'skrɪmɪnənt/			
 real roots			
/rɪəl ruːts/			
 distinct			
/dɪ'stɪŋkt/			

Further Mathematics

Topic 1 · Further Pure Mathematics 1

Σ Further Pure Mathematics			
<i>/ˈfɜːðə ˈpjʊə ˌmæθəˈmætiks/</i>			
$\sqrt{}$ roots			
<i>/ruːts/</i>			
$\times$ coefficients			
<i>/ˌkəʊiˈfɪjənts/</i>			
$\boxplus$ substitution			
<i>/ˌsʌbstɪˈtjuːʃn/</i>			
$\div$ rational function			
<i>/ˈræʃənl ˈfʌŋkʃn/</i>			

Computer Science

Topic 1 · Information representation

$\boxtimes$ number system			
<i>/ˈnʌmbə ˈsɪstəm/</i>			
⌚ denary			
<i>/ˈdiːnəri/</i>			
⌚ binary			
<i>/ˈbaɪnəri/</i>			
⌚ byte			
<i>/baɪt/</i>			
⌚ bit			
<i>/bɪt/</i>			
⌚ hexadecimal			
<i>/ˌheksəˈdesɪml/</i>			
$\#$ digit			
<i>/ˈdɪdʒɪt/</i>			
⌚ place value			
<i>/pleɪs ˈvæljuː/</i>			

$\square$ nibble			
<i>/ˈnɪbl/</i>			
$\triangle$ overflow			
<i>/ˌəʊvəˈfləʊ/</i>			
⌚ register			
<i>/ˈredʒɪstə/</i>			
⌚ two's complement			
<i>/tuːz ˈkɒmplɪmənt/</i>			
$\leftarrow$ most significant bit			
<i>/məʊst sɪɡˈnɪfɪkənt bɪt/</i>			
$\pm$ sign bit			
<i>/saɪn bɪt/</i>			
$\pm$ signed integer			
<i>/saɪnd ˈɪntɪdʒə/</i>			
$+$ unsigned			
<i>/ʌnˈsaɪnd/</i>			
⌚ one's complement			
<i>/wʌnz ˈkɒmplɪmənt/</i>			
⌚ BCD			
<i>/biː sɪː ˈdiː/</i>			
⌚ 7-segment display			
<i>/ˈsevən ˈseɡmənt dɪˈspleɪ/</i>			
⌚ memory address			
<i>/ˈmeməri əˈdres/</i>			
$\#$ code point			
<i>/kəʊd pɔɪnt/</i>			
T character set			
<i>/ˈkærɪktə set/</i>			
⌚ encoding			
<i>/enˈkəʊdɪŋ/</i>			
⌚ bitmap			
<i>/ˈbɪtmæp/</i>			

 pixel			
<i>/ˈpɪksl/</i>			
 file header			
<i>/faɪl ˈhedə/</i>			
 image resolution			
<i>/ˈɪmɪdʒ ˌrezaˈluːʃn/</i>			
 screen resolution			
<i>/skriːn ˌrezaˈluːʃn/</i>			
 colour depth			
<i>ˈkʌlə depθ/</i>			

Economics

Topic 1 · Basic economic ideas and resource allocation

 scarcity			
<i>ˈskeəsiːti/</i>			
 resources			
<i>ˈrɪˈzɔːsɪz/</i>			
 finite			
<i>ˈfaɪnaɪt/</i>			
 scarce			
<i>/skeəs/</i>			
 goods			
<i>/ɡʊdz/</i>			
 services			
<i>ˈsɜːvɪsɪz/</i>			
 wants			
<i>/wɒnts/</i>			
 economic problem			
<i>/iːkəˈnɒmɪk ˈprɒbləm/</i>			
 opportunity cost			
<i>/ɒpəˈtjuːnɪti kɒst/</i>			

 alternative			
<i>/ɔːlˈtɜːnətɪv/</i>			
 consumer			
<i>/kənˈsuːmə/</i>			
 producer			
<i>/prəˈdjuːsə/</i>			
 firm			
<i>/fɜːm/</i>			
 government			
<i>ˈɡʌvənmənt/</i>			
 social science			
<i>ˈsəʊʃl ˈsaɪəns/</i>			
 model			
<i>ˈmɒdl/</i>			