1 · Structure, Bonding and Introduction to Organic Chemistry

Pearson Edexcel · International A-Level · Chemistry · Vocabulary in context

Word	Example
atom /ˈætəm/	An **atom** has a nucleus and electrons.
ion /ˈaɪɒn/	An **ion** is an atom that has gained or lost electrons.
molecule /ˈmɒlɪkjuːl/	A water **molecule** has two hydrogen atoms and one oxygen atom.
mole /məʊl/	One **mole** of carbon has a mass of 12 g. 12 g
molar mass /ˈməʊlə mæs/	The **molar mass** of water is 18 g/mol. 18 g/mol
limiting reagent /ˈlɪmɪtɪŋ rɪˈeɪdʒənt/	The **limiting reagent** runs out first.
empirical formula /emˈpɪrɪkl ˈfɔːmjʊlə/	The **empirical formula** of glucose is CH2O. CH2O
percentage yield /pəˈsentɪdʒ jiːld/	We made 8 g out of a possible 10 g: an 80% **percentage yield**. 10 g 8 g 80%
atom economy /ˈætəm ɪˈkɒnəmi/	High **atom economy** means little waste.
isotopes /ˈaɪsətəʊps/	Carbon-12 and carbon-14 are **isotopes**. Carbon-12 carbon-14
orbital /ˈɔːbɪtl/	Each **orbital** holds at most two electrons.
periodicity /ˌpɪərɪˌɒˈdɪsɪti/	**Periodicity** means patterns repeat across each period.

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ionic bond /aɪˈɒnɪk bɒnd/	An **ionic bond** is the attraction between oppositely charged ions.
covalent bond /ˈkəʊvələnt bɒnd/	A **covalent bond** is a shared pair of electrons.
electronegativity /ɪˌlektrəʊŋgəˈtɪvɪti/	Fluorine has the highest **electronegativity** of all elements.
functional group /ˈfʌŋkʃənl gruːp/	The –OH **functional group** makes a compound an alcohol. –OH
homologous series /həˈmɒləgəs ˈsɪəriːz/	The alkanes form a **homologous series**: each member has one more CH2. CH2
hazard /ˈhæzəd/	A **hazard** can cause harm, like a hot plate or acid.
free radical /friː ˈrædɪkl/	A chlorine atom with one unpaired electron is a **free radical**.
E/Z isomerism /iː zed ˈaɪsəmərɪzəm/	**E/Z isomerism** needs two different groups on each carbon of the C=C bond. C=C
electrophile /ɪˌlektrəʊˈfaɪl/	Bromine acts as an **electrophile** when it attacks a double bond.
addition polymerisation /əˈdɪʃn ˌpɒlɪməraɪˈzeɪʃn/	Ethene molecules join by **addition polymerisation**.
• **element** /ˈelɪmənt/	Each **element** of the array holds one value.
compound /ˈkɒmpaʊnd/	Water is a **compound** of hydrogen and oxygen.
molecular formula /məˈlekjʊlə ˈfɔːmjʊlə/	The **molecular formula** of glucose is C6H12O6. C6H12O6

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relative atomic mass /ˈrelətɪv əˈtɒmɪk mæs/	Chlorine has a **relative atomic mass** of 35.5. 35.5
relative molecular mass /ˈrelətɪv məˈlekjʊlə mæs/	Water has a **relative molecular mass** of 18. 18
relative formula mass /ˈrelətɪv ˈfɔːmjʊlə mæs/	Sodium chloride has a **relative formula mass** of 58.5. 58.5
mass concentration /mæs ˌkɒnsənˈtreɪʃn/	**Mass concentration** is measured in g/dm^3. g/dm^3
amount concentration /əˈmaʊnt ˌkɒnsənˈtreɪʃn/	**Amount concentration** is moles divided by volume.
parts per million /pɑːts pɜː ˈmɪlɪən/	Air contains about 420 **parts per million** of carbon dioxide. 420
atomic number /əˈtɒmɪk ˈnʌmbə/	Carbon has an **atomic number** of 6. 6
mass number /mæs ˈnʌmbə/	Carbon-12 has a **mass number** of 12. Carbon-12 12
mass-to-charge ratio /mæs tə tʃɑːdʒ ˈreɪʃɪəʊ/	The peak at a **mass-to-charge ratio** of 46 is ethanol. 46
relative abundance /ˈrelətɪv əˈbʌndəns/	The tallest peak shows the isotope with the highest **relative abundance**.
ionisation energy /ˌaɪənaɪˈzeɪʃn ˈenədʒi/	The **ionisation energy** of hydrogen is 13.6 eV. 13.6 eV
coordinate bond /kəʊˈɔːdɪnət bɒnd/	In NH4+, one N–H bond is a **coordinate bond**. NH4+ N–H

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Word	Example
bond length /bɒnd leŋθ/	A double bond has a shorter **bond length** than a single bond.
bond angle /bɒnd 'æŋgl/	The **bond angle** in water is 104.5°. 104.5°
polarising power /'pəʊləraɪzɪŋ 'paʊə/	**Polarising power** rises with charge and falls with ionic radius.
polarisability /ˌpəʊləˌraɪzə'bɪlɪti/	Large ions have high **polarisability**: their electrons are easy to pull out of shape.
structural isomers /'strʌktʃərəl 'aɪsəməz/	Butane and methylpropane are **structural isomers**.
risk /rɪsk/	Known probabilities help a manager estimate **risk**.
carbon neutrality /'kɑːbən njuː'trælɪti/	A fuel has **carbon neutrality** if it takes in as much CO_2 as it gives out. CO_2
homolytic fission /ˌhɒmə'lɪtɪk 'fɪʃn/	In **homolytic fission**, each atom takes one electron from the bond.
heterolytic fission /ˌhetrə'lɪtɪk 'fɪʃn/	In **heterolytic fission**, one atom takes both electrons from the bond.
sigma bond /'sɪgmə bɒnd/	A single bond is a **sigma bond**.
pi bond /paɪ bɒnd/	A double bond has one sigma bond and one **pi bond**.
carbocation /ˌkɑːbə'keɪʃn/	A **carbocation** has a positive charge on a carbon atom.
repeat unit /rɪ'piːt 'juːnɪt/	The **repeat unit** of poly(ethene) is –CH2–CH2–. –CH2–CH2–

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Word	Example
biodegradable /ˌbaɪəʊdɪˈgreɪdəbl/	A **biodegradable** material can be broken down by living organisms.

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