INKCHEMISTRY FLASHCARDS

Introduction to organic chemistry

Unit C16 · 35 cards · fronts and backs

Print double-sided, flipping on the long edge, and each answer lands behind its question. Cut along the card borders.

Definitions to learn and misconceptions to correct. These cards, and a check-yourself question for every lesson, run on the website with spaced-repetition scheduling, at inklearning.co.uk/chemistry/flashcards.

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Define: Empirical formula.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Molecular formula.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: General formula.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Structural formula.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Displayed formula.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Skeletal formula.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Homologous series.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Functional group.

NAMING AND REPRESENTING ORGANIC MOLECULES

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

The actual number of atoms of each element in one molecule of a compound.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

The simplest whole-number ratio of atoms of each element in a compound.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

The minimal detail that shows the arrangement of atoms in a molecule, such as $CH_3CH_2CH_2COOH$.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

An algebraic formula that can describe any member of a homologous series, such as C_nH_{2n+2} for the alkanes.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

A simplified formula showing the carbon skeleton as lines, with hydrogen atoms on carbon removed and functional groups shown.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

A formula showing the relative positioning of all the atoms in a molecule and every bond between them.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

An atom or group of atoms in a molecule that is responsible for its characteristic chemical reactions.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

A series of organic compounds with the same functional group and general formula, in which each member differs from the next by CH_2.

NAMING AND REPRESENTING ORGANIC MOLECULES

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Define: Hydrocarbon.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Saturated.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Unsaturated.

NAMING AND REPRESENTING ORGANIC MOLECULES

SPOT THE ERROR

Say what is wrong with this claim:

The longest chain is the one drawn straight across the page, so the name can be read off from left to right.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Define: Isomers.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Structural isomers.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Stereoisomers.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Chain isomers.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Containing only single bonds between carbon atoms.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

A compound containing carbon and hydrogen only.

NAMING AND REPRESENTING ORGANIC MOLECULES

SPOT THE ERROR

The parent chain is the longest continuous chain of carbon atoms that contains the functional group, whichever way it bends on paper. A chain can turn a corner through what looks like a branch. Find it by counting along every route, then number from the end that gives the functional group, and after it the branches, the lowest numbers.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Containing at least one carbon–carbon double or triple bond.

NAMING AND REPRESENTING ORGANIC MOLECULES

DEFINITION

Compounds with the same molecular formula but a different structural formula.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Compounds with the same molecular formula but a different arrangement of atoms.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Structural isomers with the same functional group but a different arrangement of the carbon skeleton.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Compounds with the same structural formula but a different arrangement of the atoms in space.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Define: Position isomers.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Functional group isomers.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: E/Z isomerism.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Cahn–Ingold–Prelog priority rule.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Cis–trans isomerism.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

SPOT THE ERROR

Say what is wrong with this claim:

A chain bent into a different shape on paper is an isomer of the straight version.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Define: Addition.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Substitution.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Structural isomers with the same molecular formula but different functional groups.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

Structural isomers with the same carbon skeleton and functional group, the functional group being attached to a different carbon atom.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

On each carbon of the double bond, the group whose first atom has the higher atomic number has the higher priority.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

A form of stereoisomerism caused by restricted rotation about a C=C double bond, where each carbon of the double bond carries two different groups.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

SPOT THE ERROR

Isomers have the same molecular formula and different structures, meaning a different order of bonds. Single bonds rotate freely, so a zigzag and a straight drawing of butane are one molecule caught in two positions. Only a change in connectivity, such as a branch, or restricted rotation about a C=C, makes a different compound.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

A special case of E/Z isomerism in which the two carbons of the C=C carry one identical group each, such as H; cis has those groups on the same side, trans on opposite sides.

STRUCTURAL ISOMERISM AND E/Z ISOMERISM

DEFINITION

A reaction in which an atom or group of atoms in a molecule is replaced by a different atom or group.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

A reaction in which two molecules join together to form a single product.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Define: Elimination.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Hydrolysis.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Condensation.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Percentage atom economy.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Homolytic fission.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Heterolytic fission.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Radical.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Nucleophile.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

The splitting of a molecule by reaction with water.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

A reaction in which a small molecule is removed from a larger one, leaving a double bond.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

The mass of the desired product as a percentage of the total mass of all the reactants in the balanced equation.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

A reaction in which two molecules join together with the loss of a small molecule such as water.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

The breaking of a covalent bond in which one atom takes both electrons from the shared pair, forming a positive and a negative ion.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

The breaking of a covalent bond in which each atom takes one electron from the shared pair, forming two radicals.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

An electron pair donor, which is attracted to an electron-deficient atom such as a δ+ carbon.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

A species with an unpaired electron, shown by a dot in its formula.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

Define: Electrophile.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

Define: Curly arrow.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

SPOT THE ERROR

Say what is wrong with this claim:

A curly arrow shows an atom or an ion moving from one place to another.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

© 2026 Ink Learning Ltd. All rights reserved.

DEFINITION

An arrow showing the movement of a pair of electrons, from a lone pair or a bond to where a new bond or lone pair forms.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

DEFINITION

An electron pair acceptor, which is attracted to a region of high electron density.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

SPOT THE ERROR

A curly arrow shows a pair of electrons moving. It starts at the pair, a lone pair or a bond, and ends where the pair goes, a new bond or an atom that takes it. Atoms are moved by the bonds the arrows make and break, never by an arrow of their own. A half-headed arrow, in a radical mechanism, moves one electron.

REACTION TYPES, CURLY ARROWS AND HOW A MECHANISM IS WRITTEN

© 2026 Ink Learning Ltd. All rights reserved.