Organic review: core and alcohol extension

Student activity • observation and reasoning

YEAR 11 / LESSON 96 / CHEMISTRY + SCIENCE (DOUBLE AWARD)

The question

Which explanation applies to your course?

Consolidate hydrocarbon structures and equations. Chemistry learners then connect alcohol structures to combustion and acid formation.

Equipment

- Booklet, pencil, periodic table and optional molecular model kit

Desk activity only; keep small model pieces away from mouths.

Course coverage: Shared tasks/questions 1–4: hydrocarbons and energetics. Chemistry-only tasks/questions 5–6: alcohol structures and oxidation.

Plan, model or apparatus sketch

Draw a labelled structure or model to explain your reasoning for this lesson.

Method and reasoning

Read the whole sequence before starting

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1. Draw butane and but-1-ene with correct carbon valencies.

2. Explain their different responses in a controlled bromine-water comparison.

3. Balance complete combustion of butane.

4. Explain why a temperature rise indicates energy transfer to surroundings.

5. Chemistry only: draw ethanol and identify –OH.

6. Chemistry only: contrast ethanol combustion with oxidation to ethanoic acid and correct one error in your first attempt.

Cleanup

- Return shared equipment and retain corrected reasoning.

Record your evidence

Blank spaces are for your own work

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Reference and task data

Core formulae C_4H_{10} and C_4H_8 refer here to named acyclic butane and but-1-ene. Chemistry extension: C_2H_5OH and CH_3COOH. This is original written revision, not a practical or past-paper reproduction.

Task	My structure / working	Reason / correction
Core structures		
Core reactions		
Chemistry-only alcohols		

Show your calculations, labelled model or correction here.

Explain and evaluate

Use evidence and show calculation steps where relevant

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1. Name the two hydrocarbon families.

2. What change is expected for the alkene with bromine water?

3. Balance butane combustion.

4. Why does an exothermic process warm surroundings?

5. Chemistry only: show ethanol’s functional group.

6. Chemistry only: name the carbon-containing products of the two oxidation routes.