

## AS Level Human Biology and Biology

### Jelly Mods

#### **Instructions and answers for teachers**

*These instructions should accompany the OCR resource 'Jelly Mods' activity which supports OCR AS Level Human Biology and Biology.*

GCSE Chemistry  
Lesson Element

GCSE Chemistry

How to answer 6 mark LOR – A172/02 2013  
Example: A172 02 June 13, Q8a  
Task 1: Read this question

Lithium chloride, sodium chloride and potassium chloride are all soluble in water.  
The diagrams show the energy change when each salt dissolves in water.

(a) Tom does an experiment.

He dissolves each compound in water and measures the temperature change that happens when the compound dissolves.

He uses the same amount of each compound and water each time.

Use the energy level diagrams to help you to explain the results Tom should expect from his experiment.

The quality of written communication will be assessed in your answer.

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#### The Activity:



*This activity offers an opportunity for English skills development.*

#### Associated materials:

- Student information sheet
- Sheets with diagrams for assembling molecules (A–F)
- Student activity sheet
- Student activity answer sheet
- Bingo cards
- List of key terms with definitions numbered 1–12 for 'bingo caller'

### Introduction

'Jelly mods' biological molecule activity allows students to build biological molecules of varying complexity and explore the following concepts:

- the structure of monomers and polymers in a range of biological molecules e.g. carbohydrates
- condensation and hydrolysis reactions in formation and breakdown of biological molecules.

This activity can be developed using 'molymod' kits or jelly sweets and cocktail sticks. The objective is to broaden student knowledge of biological molecules and to aid understanding of those molecules included on the specification. The concepts learned will support advancement to A level as a range of molecules are discussed.

### Key terms

- monomer, monosaccharide, disaccharide, triose, pentose, hexose, isomer, polymer, polysaccharide, glycosidic bond, condensation, hydrolysis.

These key terms can be consolidated by the quiz activity that follows the lesson as plenary or starter for following lesson, whereby students are given 'bingo' cards. The bingo caller calls out definitions for the key terms which students match to their bingo cards.

### Common misconceptions

- students often memorise which monomers each polymer is made of but then struggle to apply knowledge to 'new' molecules which have not been studied in detail
- students fail to recognise the link between triose (C3), pentose (C5) and hexose (C6) in metabolic reactions, such as respiration
- students looking at ring form structures of monosaccharides often relate the terms pentose and hexose to the shape of the molecule rather than the number of carbon atoms it has
- students often suggest that alpha glucose forms 'alpha helices' during condensation reactions, a misconception stemming from protein structure.

### Teacher Instructions

#### Student instructions for 'Jelly Mods' activity

If jelly sweets are used - each student will select at least six black jelly sweets (carbon atoms), six red jelly sweets (oxygen atoms) and twelve white OR yellow jelly sweets (hydrogen atoms). Each student will also need approximately 25 cocktail sticks-these can be broken in half or quarters to provide bonds.

OR

- Molymods ® can be used if sufficient kits are available.
- Students can work in groups of two-four and complete the activities on the student activity worksheet using models and information sheet on carbohydrates.
- If jelly sweets are used a centre risk assessment should be carried out regarding handling of sweets (i.e. need to wash hands) and use of sharp-ended cocktail sticks.
- 'wine gums' or 'midget gems' provide the appropriate colours and consistency for the jelly sweets in this activity.

#### Student instructions for 'Bingo' starter/plenary activity

- There is also a starter or plenary 'bingo' activity that consolidates key terms.
- Each student or group of students is given a bingo card with key terms (these can be laminated for reuse). The bingo caller pulls out a random number from 1 to 12 and reads out the definition associated with the number (random number generator can be used). Students must pick the key term that matches the definition read by the caller and cross it off on their card. The winner is the first to cross out the six definitions on their card.

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