*Education in Chemistry*  
Sustainability in chemistry 2021

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture  
[rsc.li/3sFPwsx](file:///C:\Users\murphyg\Downloads\rsc.li\3sFPwsx)

Information sheet for assessing the common practical assessment competencies (CPACs) in the English A-level chemistry curriculums (OCR, Edexcel, AQA)

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| --- | --- | --- | --- |
| **The rate of hydrolysis of urea** | | | Date: |
| Apparatus and techniques (AT) | | | |
| **Code** | **Description** | | |
|  | Use appropriate apparatus to record a range of time, volume of liquids measurements | |  |
|  | Use laboratory apparatus for a variety of experimental techniques, including titration | |  |
|  | Measure pH using pH meter, or pH probe on a data logger | |  |
|  | Safely and carefully handle solids and liquids, including corrosive, irritant substances | |  |
|  | Measure rates of reaction by at least two different methods, for example: an initial rate method | |  |
| Targeted common practical assessment criteria | | | |
| **Code** | **Description** | **Evidenced by** | **Standard achieved** |
| 1 | Correctly follows instructions to carry out experimental techniques or procedures | *Teacher observation* |  |
| 2a | Correctly uses appropriate instrumentation, apparatus and materials (including ICT) to carry out investigative activities, experimental techniques and procedures with minimal assistance or prompting | *Teacher observation, verbal questioning during practical* |  |
| 2b | Carries out techniques or procedures methodically, in sequence and in combination, identifying practical issues and making adjustments when necessary | *Written question* |  |
| 2c | Identifies and controls significant quantitative variables where applicable and plans approaches to take account of variables that cannot readily be controlled | *Written question, teacher observation* |  |
| 2d | Selects appropriate equipment and measurement strategies in order to ensure suitably accurate results | *Teacher observation or written equipment list with justification* |  |
| 3a | Identifies hazards and assesses risks associated with these hazards, making safety adjustments as necessary, when carrying out experimental techniques and procedures in the lab or field | *Hazards and precautions identified – written question* |  |
| 3b | Uses appropriate safety equipment and approaches to minimise risks with minimal prompting | *Teacher observation* |  |
| 4a | Makes accurate observations relevant to the experimental or investigative procedure | *Completed results chart showing accuracy for results. Look at this holistically* |  |
| 4b | Obtains accurate, precise and sufficient data for experimental and investigative procedures and records this methodically using appropriate units and conventions | *Complete results chart, with correct title and units containing accurate results* |  |
| 5a | Uses appropriate software and/or tools to process data, carry out research and report findings. | *Correctly drawn graph. Calculations leading to conclusion based on results* |  |
| 5b | Cites sources of information demonstrating that research has taken place, supporting planning and conclusions |  |  |
| Teacher/Student targets from practical: | | | |
| *Note: for a learner to have achieved total competency in a skill, they need to have achieved that common practical assessment criteria a number of times across a number of practicals during the two years of an A Level chemistry course.* | | | |

**Teacher observation check list**

Suggested format for teacher observation check list to assess CPACs visually during the lesson.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CPAC  Date:  Practical:  Name: | 1a  Correctly follows instruction | 2a  Correctly uses apparatus | 2d  Selects appropriate equipment | 3b  Appropriate safety | | |
| Goggles | Pipette | Burette |
|  |  |  |  |  |  |  |