

# Common Core

## Unit - WPTCC05 - Water and Wastewater Science

This training specification is knowledge only and has been developed from the water process technician standard. The specification details the **minimum** training specification, as agreed by industry employers, to deliver the knowledge required to carry out an effective role in the water industry.

The specification details the critical requirement of the activity to carry out the work outlined and does not preclude employers from adding to the skills and knowledge detailed by the specification in their own training programmes.

All work must be carried out to approved procedures and practices and in accordance with statutory health, safety and environmental requirements.

### What does this specification look like?

Learners need to be able to:

- SCI1 Understand the maths commonly used in the water industry
- SCI2 Understand the science commonly used in the water industry

### What do I need to take this module?

Candidates to be **assessed** as competent in this area should have successfully completed the modules shown below or have evidence demonstrating an equivalent level of competence.

1. National Water Hygiene Card – (for clean water technicians only) provides basic awareness of working on restricted operations
2. Completion of the water quality standards module – (for clean water technicians only) provides an awareness of the quality standards that drinking water must meet

## Performance Criteria

This is a knowledge only module.

## Knowledge and Understanding

To achieve this unit, you will need to know and understand:

### General Requirements

- K1. The principles of Health, Safety and Environmental legislation when working with water or wastewater
- K2. The organisation's safety rules, policies and procedures when working with water or wastewater
- K3. The hazards associated with working with water or wastewater treatment processes and the correct way to respond to them
- K4. How to select, inspect and use PPE
- K5. How to carry out a site specific risk assessment and identify workplace hazards
- K6. How to respond in the event of an emergency situation in the workplace environment
- K7. How to leave the work area in a safe and secure condition
- K8. The company recording and reporting process

### Task Specific – Water and Wastewater Science

- K9. What S.I. units are used within the water industry
- K10. How to complete common and simple calculations
- K11. How to use standard form
- K12. What equipment to select for performing measurement of distance, area, volume and flow
- K13. How to perform unit conversions
- K14. How to carry out simple transposition of formula
- K15. The liquids, gases and solid states commonly found in the water industry
- K16. The differences and importance of elements, molecules, compounds, atoms and ions, including the reactivity of some of these using the periodic table
- K17. The composition of air and its relationship to the water industry
- K18. The difference between organic and inorganic compounds
- K19. The pH scale, acids, bases and alkalinity – including how to perform a pH test
- K20. The differences between the terms physical, chemical and biological when describing a process used in the water industry
- K21. How to carry out a practical analysis of a sample as appropriate using the suitable equipment and method

### How will it be assessed?

To achieve this unit, you will need to be able to provide evidence of the performance criteria and the knowledge and understanding requirements listed above.

Assessment types:

1. External assessment – an external accrediting body will assess against a national minimum standard
2. Internal assessment process – a company led on-going assessment against requirements
3. End-point assessment – see assessment plan for further details here (will be Energy & Utility Skills defined)

### What type of evidence will be expected?

To achieve this unit, you will need to be able to provide evidence of the performance criteria and the knowledge and understanding requirements listed above.

Evidence types:

1. On-going local assessments
  - a) Assessment plan, review, feedback, standard assessment sheets
2. Knowledge based learning
  - a) Classroom, exams, assignments, Q&A sessions, e-learning modules
3. Evidence portfolios
  - a) Learning logs, photos, observation sheets

### Assessment types and process

