

Sample Assessment Material

Level 3 Cambridge Technical Extended Diploma in Applied Science

Unit 23: Scientific Research Techniques

PRE-RELEASE MATERIAL

You must have:

- Access to the internet and other relevant documents.



First Name		Last Name	
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Centre Number						Candidate Number				
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Date of Birth									
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INSTRUCTIONS

- This material must be issued 6 weeks prior to the published examination date.
- Learners are permitted to summarise their research findings and record results/evidence/data gathered in their own research in response to the pre-release material and theme in the notes pages at the back of this document only (not in the margins or around the pre-release material itself).
- The notes section must not be used to produce a formal write-up of the research conducted.
- Teachers must collect in each learner's pre-release material and notes one calendar week prior to the exam date.
- Teachers must check that the notes made are appropriate and are the learners' own work in advance of the examination taking place.
- The pre-release and notes must then be returned to learners **immediately before the exam commences**.
- The pre-release and notes **must** be submitted along with the learners' Question Paper at the end of the examination (attach with treasury tags).

INFORMATION

- This pre-release material contains research sources on a common theme, upon which examination questions will be based.
- The Question Paper will require learners to respond to questions which are directly about the sources in the pre-release material and others which are associated with the theme of the pre-release but not directly about the sources provided.
- Learners also need to conduct research of their own linked to the pre-release material during the 5 weeks they have access to the document.
- Part of the Question Paper will be based upon the research each learner has undertaken.
- This document consists of 7 pages.

TURN OVER

Source A - www.britishbottledwater.org/bottled-water-the-differences.asp

Tap water is safer than bottled water

Whilst bottled water costs considerably more than the water from the tap, a study suggests that it is not a healthier choice.



Researchers have found that the safety tests applied to the production of bottled water fall short of the safety tests used in the production of tap water and that bottled water is much more likely to be contaminated.

Tap water must, by law, be checked every day under a strict inspection regime. It is claimed that bottled water plants are only required to undertake monthly testing at source. Chlorine is added in small amounts to tap water to prevent the spread of infection from bacteria.

Bottled water has no added disinfectants but could remain in storage for an extended period, even months, before use. As soon as a bottle of water is opened it is no longer sterile and should be drunk quickly, certainly no longer than a couple of days. A litre of bottled water can cost more than 1000 times the cost of a litre of tap water.

Further Information

Thames Water state *"Our water is tested against 50 different elements to determine the microbiological, chemical, radiological and aesthetic qualities of it."*

www.thameswater.co.uk/your-account/7481.htm

The British Bottled Water Producers web site tells us:

There are three types of bottled water: Natural Mineral Water, Spring Water and Table Water (referred to in law as 'Other' bottled water). These are all governed by special regulations and stringently regulated by the DEFRA.

Natural Mineral Water: Must come from an identified and protected source. It is guaranteed to be consistent in composition and naturally wholesome without any treatment - except in some cases when carbon dioxide is added to make the water sparkle. Natural Mineral Water status is only granted to waters that are demonstrated to be free from pollution and have a characteristic stable composition.

Spring Water: In the UK, like Natural Mineral Water, this must originate from an underground source, be bottled at source and be microbiologically safe without treatment. However, in the UK, unlike Natural Mineral Waters, certain other treatments are permitted for Spring Waters. Treatments may include the removal of certain minerals as defined by the European Union Scientific Committee for Food, which has yet to issue its guidelines. These allow the removal of certain undesirable substances. The rules regarding Spring Water in the UK are currently being reviewed by DEFRA.

Table Water: Table water (so called by the industry but referred in the Regulations as ‘other bottled waters’) is usually bottled filtered water which is sourced as tap water.

Source B – extract adapted from <http://www.bottledwater.org/health/bottled-water-vs-tap-water>.

Bottled Water or Tap Water?

Most of us will drink bottled water or tap water depending on the circumstances. Health professionals all agree that drinking water is essential for health, whatever the source. Water from the tap, filtered or bottled all contributes to a healthy lifestyle. The choices tend to come down to a combination of taste, quality, convenience and cost.

Consumers may purchase bottled water as part of a calorie controlled diet or as a replacement for sugary soft drinks. Bottled water can also be used during a detox when removing caffeine, alcohol or artificial ingredients from the diet.



BOTTLED WATER—HOW SAFE IS IT?

Industry Supports Public Water System

It might surprise you to know that the bottled water industry is a staunch supporter of the public water distribution system. The industry sees the national water distribution as important for the provision of clean, safe water and many bottled water companies use public water sources in their products.

Water entering a bottling plant goes through a number of processes to ensure that the water quality meets stringent water quality standards. These processes include a multi-barrier approach consisting of such measures as: reverse osmosis, ozone disinfection, distillation, micro-filtration, carbon filtration, and the use of ultraviolet (UV) light. The final product is then placed in a sealed bottle under sterile conditions before being sold.

UK Water companies retain a massive stock of bottled water as a contingency if the domestic water supply becomes compromised. This could occur if there is a fault in the water process or an emergency shut down. Natural disasters such as floods or fires can result in water having to be boiled before use. During such times, bottled water provides a necessary and reliable alternative route to deliver clean, safe drinking water.

Get the Facts

If you want to know more detail on bottled and tap water you could visit:

UK Water standards can be found at: www.water.org.uk/policy/drinking-water-quality/water-quality-standards.

Details on the UK regulations on bottled water can be downloaded from: <http://dwi.defra.gov.uk/consumers/advice-leaflets/bottled%20water.htm>.

Distributed water systems (tap water) water for human consumption and other uses (e.g., washing clothes, bathing, and industrial and commercial uses) through a national distribution system. Water companies are granted exclusive rights to provide water to consumers in a particular geographic area. Consumers do not, therefore, have a choice of which public water system will provide water to their homes or businesses.

Bottled water is a food product sold in sealed containers. Customers have a wide choice of bottled water suppliers to suit their tastes and price scale. Bottled water is supplied in many different sizes, from small individual bottles for children’s lunchboxes to large water cooler containers.

