Water and use of resources

AQA GCSE Chemistry (8462) · Foundation and Higher

Answer on your own paper. Show your working where needed.

1. Potable water

A treated water sample still contains some dissolved mineral salts. Explain what makes water potable and why the presence of dissolved salts does not automatically make it unsafe.

2. Two jobs in water treatment

A fresh-water supply contains suspended solid particles and microorganisms. Name a process that removes many insoluble particles and a process that reduces the risk from microorganisms.

3. The condenser and the flask

A sample of seawater is purified by simple distillation. Explain why water can be collected at the condenser outlet and where the dissolved salt ends up.

4. Compare dissolved solids

A pupil evaporates 40 cm^3 of sample A and obtains 0.080 g of dry residue. Evaporating 80 cm^3 of sample B leaves 0.120 g. Which sample contains more dissolved solid per cm^3? Use both measurements in your working.

5. Checking a bottle comparison

A company says a new drinks bottle has a lower impact based on the energy used at the factory. State three other life-cycle stages to include and suggest an environmental impact to compare at one of those stages.

6. Two stages of sewage treatment

After solids have settled, the sludge and the liquid effluent go into separate tanks. In one tank air is pumped in, and the other tank excludes oxygen. Match each product to its tank and name both types of biological treatment.

7. Evidence for choosing packaging

To provide the same service 100 times, packaging A causes 8 kg CO_2 equivalent of emissions and uses 60 L of water. B causes 5 kg and uses 90 L. Which better meets a target to reduce emissions? Use both sets of figures to explain why another buyer might choose differently.

8. Reuse makes the comparison fair

A reusable container has a production footprint of 2.4 kg CO_2 equivalent. Each use adds 0.04 kg from washing. A disposable one adds 0.18 kg per use. Compare their footprints for 20 uses. State one assumption.

9. Extra challenge · Make the same service comparison

A single-use cup causes 0.12 kg CO_2 equivalent per drink. A reusable cup causes 1.44 kg when made and 0.04 kg each time it is washed and used.

Find the first whole number of uses for which the reusable cup gives the smaller total. Explain how a real change in washing or disposal could affect the conclusion.

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