

Combined Science - Chemistry - Key Stage 4

C10 Using Resources

## **Exam skills - Compare and Evaluate**

Miss Offer



# Independent task - Compare LCA example question

Wooden forks are an alternative to metal forks. Compare the use of a metal fork to a wooden fork.

|  | <b>Metal forks</b> | <b>Wooden forks</b> |
|--|--------------------|---------------------|
| Raw materials                                  | Finite - metals    | Renewable           |
| Reusable                                       | Yes - if washed    | No                  |
| Carbon dioxide produced per fork in grams      | 400                | 350                 |
| Water used to make each fork in m <sup>3</sup> | 1.2                | 0.4                 |



# Independent task - Compare potable water treatment

Fluoride can be added to potable water to help prevent and reduce dental decay. It is recommended that the level of fluoride in water is below 0.5 mg per litre. Compare which method is better for detecting fluoride levels in water.

|                                       | <b>Portable instrument</b> | <b>Instrument in the lab</b>   |
|---------------------------------------|----------------------------|--------------------------------|
| Cost of equipment                     | £250                       | £1000                          |
| Hours of training required per worker | 4                          | 6                              |
| Time to prepare instrument for test   | 1 minute                   | 5 minutes                      |
| Sensitivity of the instrument         | 1 mg of fluoride per litre | 0.001 mg of fluoride per litre |



# Independent task - Evaluate LCA example question

Wooden forks are an alternative to metal forks. A company states that 'wooden forks are better for the environment than metal ones'. Evaluate this statement.

|  | <b>Metal forks</b> | <b>Wooden forks</b> |
|--|--------------------|---------------------|
| Raw materials                                  | Finite - metals    | Renewable           |
| Reusable                                       | Yes - if washed    | No                  |
| Carbon dioxide produced per fork in grams      | 400                | 350                 |
| Water used to make each fork in m <sup>3</sup> | 1.2                | 0.4                 |



# Evaluate potable water treatment

Fluoride can be added to potable water to help prevent and reduce dental decay. It is recommended that the level of fluoride in water is below 0.5 mg per litre. A company states 'that the best method to test the fluoride level is through using a lab instrument'. Evaluate this statement.

|                                       | <b>Portable instrument</b> | <b>Instrument in the lab</b>  |
|---------------------------------------|----------------------------|-------------------------------|
| Cost of equipment                     | £250                       | £1000                         |
| Hours of training required per worker | 4                          | 6                             |
| Time to prepare instrument for test   | 1 minute                   | 5 minutes                     |
| Sensitivity of the instrument         | 1mg of fluoride per litre  | 0.001mg of fluoride per litre |

