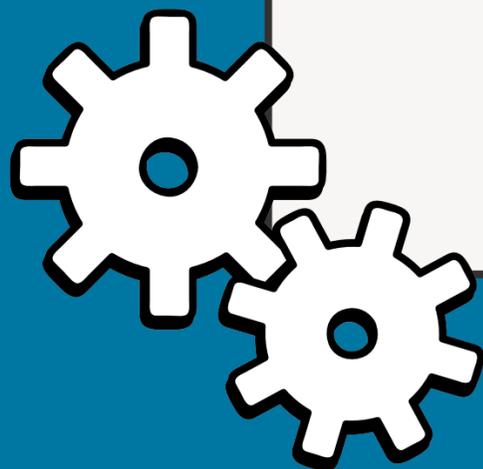




CLIL

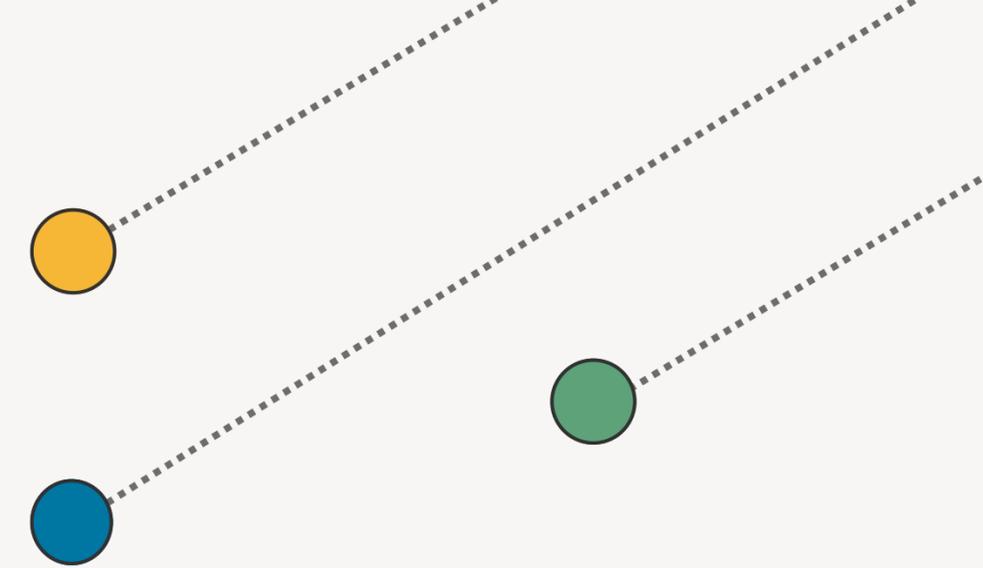


MATERIALS • UDA 4: GLASS



1. CREATE YOUR OWN MAP

Have a look at the mind map below, then sketch your own version in your exercise book.



GLASS

ORIGIN AND COMPOSITION

- Silica
- Soda
- Limestone

PROPERTIES

- Ductility
- Malleability
- Transparency
- Strength
- Insulation
- Chemical inertness
- Brittleness

Handcrafted PRODUCTION

- Manual skill
- Creativity
- Murano glassmaking

Industrial PRODUCTION

- Slip Mixing of raw materials
- Heating to 1700°C
- Molten glass ready for shaping
- Additional treatments

TYPES OF GLASS AND MAIN USES

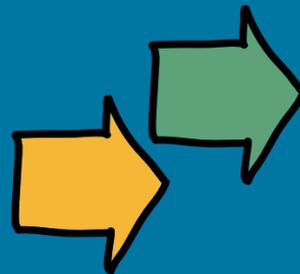
- Containers
- Constructions
- Transport
- Technological applications
- Decorative uses

SUSTAINABILITY

- Infinitely recyclable

2. CREATE YOUR OWN TEST

a. Indicate whether the following statements are true (T) or false (F).



1 The main component of glass is limestone.

 T F

2 Glass production requires a melting temperature of around 1000°C.

 T F

3 Glass is fully recyclable.

 T F

4 Glass is ductile because it can be drawn into long, thin fibres, as seen in optical fibre.

 T F

5 Glass is resistant to chemical agents but is brittle and can break easily.

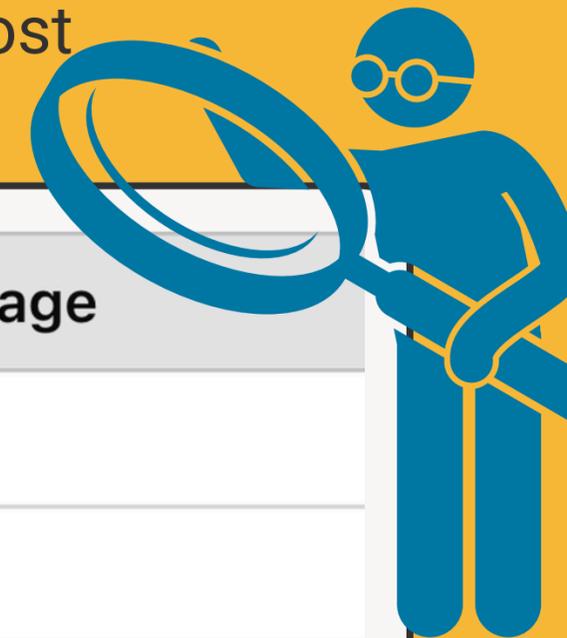
 T F

3. ANALYSIS OF DATA ON SEPARATE GLASS COLLECTION

Here are some updated figures on separate glass collection in Italy over the past five years. The following data are based on official sources, including the Glass Recovery Consortium (CoReVe) and environmental reports.

- The amount of collected glass increased by approximately 0.4 million tonnes from 2019 to 2023.
- The recycling rate rose from 76.3% in 2019 to 82.0% in 2023.

Represent the given data in the form of charts or diagrams, using the method you find most appropriate.



Year	Quantity Collected (in million tonnes)	Recycling Percentage
2019	2.1	76.3%
2020	2.2	78.6%
2021	2.3	79.4%
2022	2.4	80.0%
2023	2.5	82.0%

4. DESIGNING A PERFUME BOTTLE

OBJECTIVE

To design a glass container that is fully recyclable and suitable for cosmetic applications.

ACTIVITIES

Use traditional drawing tools or CAD software (such as Tinkercad) to design a glass perfume bottle. Consider elegant forms, including existing designs, while ensuring optimal space efficiency in both manufacturing and distribution.



5. CALCULATING THE PROPORTIONS OF RAW MATERIALS

OBJECTIVE

To calculate the precise quantities of silica, soda, and limestone required to produce a given amount of glass.

ACTIVITES

Use the typical proportions (silica: 70–75%, soda: 12–15%, limestone: 10–15%) to determine the correct mixture ratios. Calculate how many kilograms of silica, soda, and limestone are needed to produce 1000 kg of glass.

6. THE TRADITIONAL TECHNIQUES OF MURANO GLASSMAKERS

Use the QR code in your book to conduct a brief research (maximum 150 words) on **the main techniques used by Murano glassmakers.**

Search online for images and videos to illustrate these techniques, then present and compare your findings with your classmates.

But first, **take a look at the example on the next slide.**



EXAMPLE IN 170 WORDS

The **glassmakers of Murano**, a small island near **Venice**, are world-famous for their skill and creativity in glassmaking. They use **techniques passed down through generations** to create **glass artworks**.

One of their primary techniques is **glassblowing**, which involves using **a long metal tube** to blow air into molten glass, forming bubbles that can be shaped. Another technique is **mould casting**, where molten glass is poured into **moulds of various shapes** to create specific objects such as vases or figurines.

Murano glassmakers also employ **engraving and carving techniques** to decorate glass with **intricate details**.

Additionally, they masterfully combine different colours of molten glass to produce **unique, colourful pieces**.

These techniques require **manual skill, precision, and careful temperature control** to achieve the desired results.

