

## 2.6 How Glass is Made

Glass is one of the most beautiful substances that we see around us. Just take a look around yourself and see how many things you can find that are made of glass – light bulbs, bottles, jars, glasses, reading glasses, marbles, windowpanes – to name just a few. Where does this glass come from?

### How glass is made



The glass that is used to make so many everyday things is a man-made material. Can you guess what it is made from? It may seem unbelievable, but this clear, transparent and smooth looking material is actually made from sand !

Glass is made by heating a mixture of clean white sand and chemicals like soda and lime. The mixture is heated in a furnace till it turns into hot, liquid glass. When it cools down, it becomes stiff and hard.

### How glass is shaped

Once glass has become cold, stiff and hard, it is not possible to shape it. Glass is brittle. That means it breaks easily. It has to be shaped into different articles when it is still hot and soft.

Very hot glass is more like a liquid – you can pour it, mould it, roll it, press it or even blow it to make a variety of shapes.

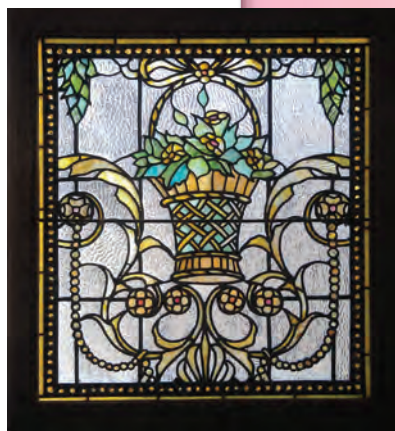
Hot liquid glass is poured into moulds and hardened to make articles of various shapes and sizes. It can also be rolled out to make flat sheets of glass. In another process, molten glass is floated on a bed of molten metal to make very flat glass sheets of even thickness. Gobs of hot liquid glass can be blown into bottles, bulbs, glasses and other objects. Liquid glass can also be drawn out into very thin fibres or glass wool.

### Some properties of glass

Glass has many useful properties. It is transparent – you can see through it. It is strong and hard. You can put a lot of load on it. It is impermeable – it does not allow water or other liquids to pass through and it doesn't get soggy or stained itself. Glass has no effect on the food, water or other substances stored in glass containers. In other words, it doesn't impart a smell, or taste to them. Ordinary glass has a smooth surface and it can be washed easily. And last but not the least important is the fact that it looks beautiful. No wonder then, that it is used to make so many things.

### Coloured Glass

Ordinary glass is colourless but it is possible to produce coloured and transparent glass by using different combinations of chemicals in the glass making process. Glass can be given many beautiful colours – blue, violet, turquoise, ruby red, pink, amber, orange, deep yellow, purple, amethyst, dark green, even black and white !



### Stained Glass

Coloured glass is used to make beautiful pictures, especially in windowpanes. Such windows are known as 'stained glass windows'. They are seen mostly in churches. Coloured glass can also be used to make beautiful sculptures or decorative articles. It is also possible to paint on glass using special chemicals and processes.



### Glass can be recycled!

Another unique feature of glass is that it is 100% recyclable. Old glass can be used to make new glass any number of times. Recycling glass in this manner is much cheaper than making new glass from raw materials. It requires much less heat, and a lot of energy is saved. If you recycle even a single glass bottle, you save enough energy to power a colour TV for about 20 minutes. So, the next time you throw away a glass bottle, think ! Glass is valuable.

#### POINTERS

#### 1. Find the following lists from the passage and copy them.

- \* Everyday things made of glass
- \* What you can do with hot liquid glass
- \* Names of colours



#### 2. Guess the meaning of the following words from the passage :

- \* molten
- \* transparent
- \* impermeable
- \* impart
- \* recyclable

#### 3. Write short notes on the following using suitable diagrams.

- \* How glass is made
- \* How glass is shaped
- \* Some properties of glass

#### 4. Find out how paper and plastic are recycled.

#### 5. Prepare a poster each to urge people to -

- (a) Use glass carefully - 'Handle Glass with Care!' (b) Recycle glass.

## VERBS

**Write what the following do :**

Monkeys ..... Turtles ..... Lions .....

People ..... Cats ..... Girls and Boys .....

You may have used words like jump, walk, swim, hunt, roar, purr, play, etc to complete the above sentences. All these words show action. Such words are known as **verbs**.

A verb is a word or a group of words that shows action - for example, pour, mould, roll, press or blow.

**Can you think of some verbs that we use very often ?**

\* c o □ □

\* g □

\* gi □ □

\* ta □ □

\* ma □ □

\* br □ □ □

\* c □ □

\* jo □ □

\* re □ □

\* wr □ □ □

Some verbs tell us what is happening or has happened or will happen, etc. even when there is no one to 'do' it. For example :

- It **rained**.
- It **became** dark.

Some verbs describe a state, for example :

- She **was** tired.
- He **is** happy.
- The rabbit **has** red eyes.

A sentence usually contains one or more verbs.

A sentence with a verb expresses a complete thought or idea.

Now, try to make complete sentences in English or in your mother tongue.

What do you find ?

Read any paragraph from the passage.

Can you find any sentence without a verb ?

Beautiful!  
This place  
is so  
beautiful!

