ST HELENS WORLD OF GLASS QUESTIONNAIRE

Our trip to St Helens World of Glass takes place on 11th November 2010. To make the trip interesting and help you remember the day, we have designed this questionnaire that you can keep.

All the answers are in the information below, so study it closely. You will also be able to see answers to questions during the visit.

St Helens World of Glass History/ Background

Originally it was intended to restore the Victorian glass furnace at the south side of the Sankey Canal; the water from the canal was used to provide cooling water for the factory. The new museum was to be located here, but the discovery of a network of tunnels of tunnels gave rise to a more ambitious scheme, giving us the museum we have today

Evidence of glass making was found as far back as 2000 BC, in ancient Egypt.

Basically glass is made by heating sand, or Silica, which is its chemical name, to about 1700 degrees C. At this temperature, which is called its melting point the sand granules or molecules fuse together to make glass. Reaching this temperature requires a lot of energy, making glass very expensive to produce. It was found however that by adding other chemicals the glass could be produced at a lower temperature, which saves money and also produced glass of a superior quality. The additional ingredients' are soda , or Sodium Silicate and limestone ,or Calcium Carbonate .The basic ingredients of glass are therefore Sand + Soda + Limestone + Heat = Glass.

Broken glass or "cullet "is also added which speeds up the process and also is "green" because it recycles and saves money and energy.

Furnaces

There are two types of furnace in use:

Pot Furnaces - Historically these consisted of a fireclay pot over a wood burning fire. Pot furnaces are still in use today, but they are now fuelled by gas and used mainly by studio glass workers.

Tank Furnaces – The Victorian Glass-making furnace at St Helens World of Glass is an original example of glass production using a tank furnace. Unlike the pot furnace, which need constant refilling, the tank furnace allows 24 hour production and it invention signalled the turning

point at which glass became a cheap, convenient mass produced commodity.

Tank Furnaces are used for large scale glass production, providing a constant flow of molten glass to machines that turn the glass into objects or shapes required. Some Tank Furnaces can melt more than 400 tonnes of glass every day.

Glass Blowing

One of the early methods used to make large pieces of glass used for example the first windows in Europe was by glass blowing. In this process molten glass is drawn out of the "*glory hol*e" of a small pot furnace by a hollow metal tube. The glass blower then breathes into the tube and rotates it until a large bubble is created.

Pittsburgh Process

This was the main mass production system which was introduced in the 1920s   used to make flat glass. In this semi molten glass is drawn from the furnace and then passed through a series of rollers until flat glass of the required thickness is obtained. This produces glass of acceptable quality but the process causes sight visual distortions

Float Glass

This method was invented by Pilkington group in the 1950s and is still used today. In this, molten glass is passed onto a bed of molten tin.

This produces glass of very good quality with little distortion and is perfect for window glass

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Chandelier

A magnificent Venetian glass chandelier regarded as an iconic piece of public art hangs in St Helens World of Glass

The 10ft (3m) long chandelier weighing two tonnes is on permanent display at the St Helens World of Glass visitor attraction.

It comes from a set of four lead glass chandeliers specially created for Manchester Airport in the 1960s and seen by thousands of holidaymakers. This work of art, which consists of 1,300 droplets of clear and coloured lead glass were designed by Royal architect Stefan Buzas and created at the renowned Venini factory, in Italy.

They were unveiled by the Duke of Edinburgh in 1963 and were sited in the Airport's terminal 1 departure hall until 2003.

 The original cost of each chandelier was £12000 , but now each chandelier is estimated to be worth about £250000.

This amazing piece of crystal is part of the North West's heritage so Pilkington and their partners were proud to restore it and put it on display to everyone in their foyer.

The World of Glass chandelier has been restored to its original design with the help of £50,000 of Heritage Lottery Funding and grants from the Pilgrim Trust, The Mersey Partnership and the Rainford Trust.

The World of Glass museum had to strengthen and modify its ceiling to support the weight of the chandelier which took two days to hang.

The chandelier was donated to The World of Glass by Manchester Airport to preserve the heritage of the region.

ST HELENS WORLD OF GLASS

QUESTIONNAIRE

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What is Glass?	
What are the basic ingredients of Glass?	Sand + Soda + Limestone + Heat = Glass
What types of furnaces are used to produce glass?	Pot Furnace Tank Furnace
How many tonnes of glass can be produced in a Tank Furnace every day?	400 tonnes
Can you think of things that are made out of glass?	Jars, Bottles, Windows, Glass ornaments
At what temperature does Silica Crystals fuse to become glass?	1700 degrees C
When Silica Crystals fuse to become Glass what is this called?	The Melting Point

Magnificent Venetian Chandelier *CHANDELIER*

If 1 chandelier costs £3,000, how much would 4 chandeliers cost?	£12,000
What was the name of the designer of the Chandeliers?	Royal architect Stefan Buzas
What Country was the designer from?	Venini factory, Italy
Where did the Chandeliers hang before St Helens World of Glass?	Manchester Airport, Terminal 1 Departures
How much would each chandelier cost now?	£250,000
How many droplets of clear and coloured lead glass are in the chandelier	1,300

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Methods of glass production	
What was the earliest method to make glass for windows	Glass blowing
Which method was introduced in the 1920s	Pittsburgh process
How is float glass made	Floated on an bath of molten tin

CANAL/TRANSPORT AND CAFE	
What is the name of the canal at the side of the museum	Sankey canal
What is the name of the museums cafe	Kaleidoscope