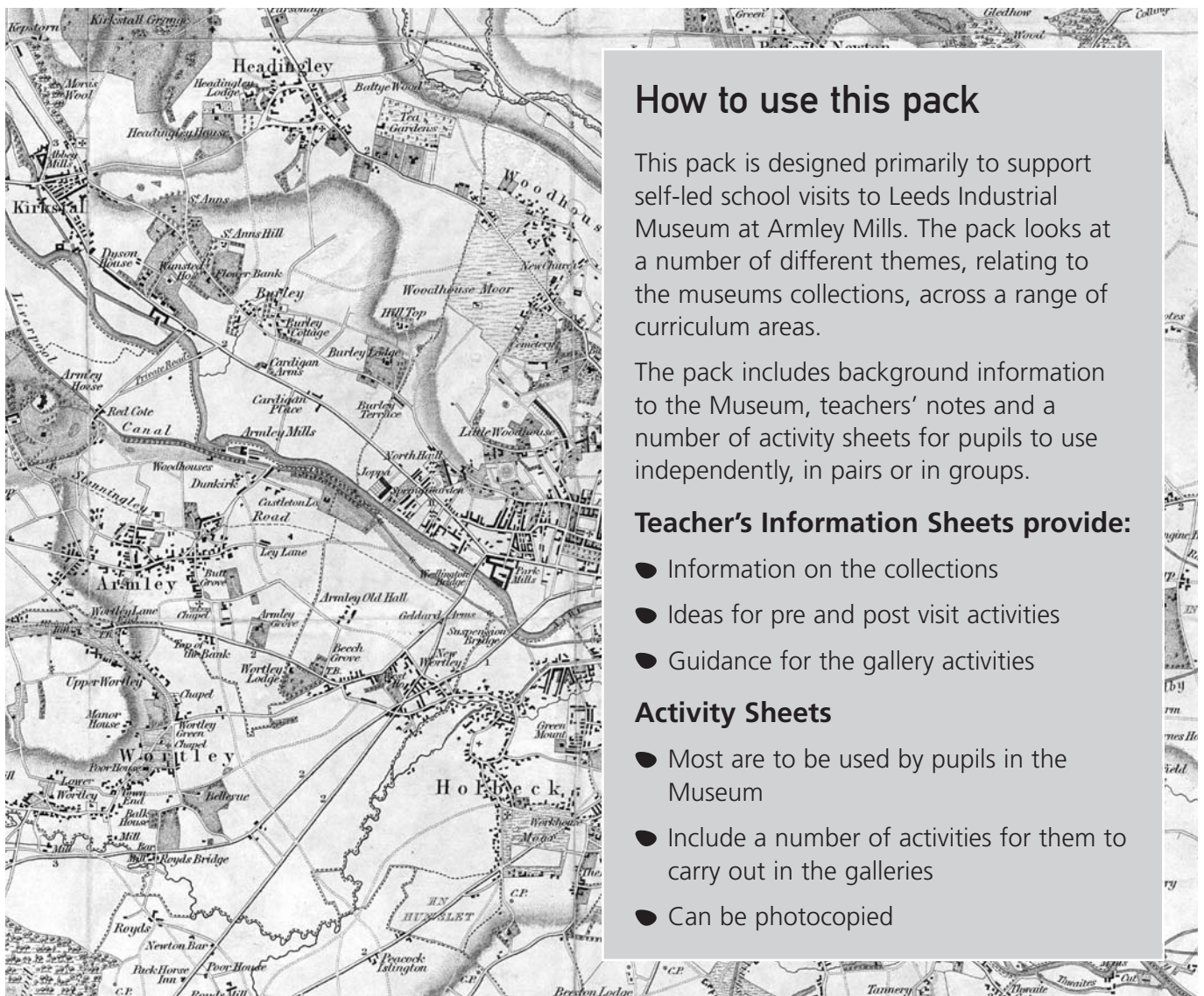


# Learning Pack

## INTRODUCTION

<b>This booklet contains:</b>	
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### How to use this pack

This pack is designed primarily to support self-led school visits to Leeds Industrial Museum at Armley Mills. The pack looks at a number of different themes, relating to the museums collections, across a range of curriculum areas.

The pack includes background information to the Museum, teachers' notes and a number of activity sheets for pupils to use independently, in pairs or in groups.

### Teacher's Information Sheets provide:

- Information on the collections
- Ideas for pre and post visit activities
- Guidance for the gallery activities

### Activity Sheets

- Most are to be used by pupils in the Museum
- Include a number of activities for them to carry out in the galleries
- Can be photocopied

# Practical Information for your visit

## Planning your visit

We strongly recommend that teachers visit the Museum prior to their trip to:

- Meet with the Learning & Access Officer to discuss your needs during your visit
- Carry out a risk assessment
- Go through the site's Health & Safety Guidance folder

There is a comprehensive health and safety folder on site that we recommend all group leaders read through. This includes information covering fire and accident procedures, CRB information, and risk assessments for the site and all activities led by staff on the site. We urge all group leaders to read through this file as part of their planning. There is a sheet that we ask you to sign once you have.

## How to book

You will need to book at least two weeks in advance, providing the Museum with the following information:

- The name and address of the group with contact name and telephone number
- The date of the visit
- The time of arrival and departure
- The number and age of the group
- The nature of the visit e.g. Investigate! From Fleece to Fashion or Gott's Challenges
- Any special needs your group may have
- Any facilities you may want to use e.g. lunch space

Bookings should be made through the learning and access office on 0113 224 4368.

## Contact Information

For general information about the Museum:

**Telephone:** 0113 263 7861  
**Fax:** 0113 224 4365  
**Email:** [armley.mills@leeds.gov.uk](mailto:armley.mills@leeds.gov.uk)  
**Website:** [www.leeds.gov.uk/armleymills](http://www.leeds.gov.uk/armleymills)

## Activity Sheet symbols

-  Discuss/Talk about
-  Act out/Mime
-  Write/Tick
-  Draw
-  Think about

## Opening times

**Tuesday-Saturday 10.00am-17.00pm**

**Sunday 13.00pm-17.00pm**

The Museum is closed on Mondays except for Bank Holiday weekends.

## Education Services

Armley Mills Museum offers a wide range of services to learners and groups of all ages, including:

- Interactive workshops for school groups
- Practical workshops led by freelancers
- Out of school and extended schools activities
- Work experience placements (Key Stage 4 and above)
- Volunteer placements (Key Stage 4 and above)
- Support from learning staff such as consultations and resources
- Online resources via the Leeds Museums and Galleries website and the MyLearning website
- A fully equipped learning centre with IT equipment
- Event led projects and activities i.e. the Big Draw and National Science Week

For young learners:

- Workshops for playgroups/schemes
- Holiday Activities
- Family Fun Days
- Under 5s Club 'Little Bobbins'

## Getting to the Museum

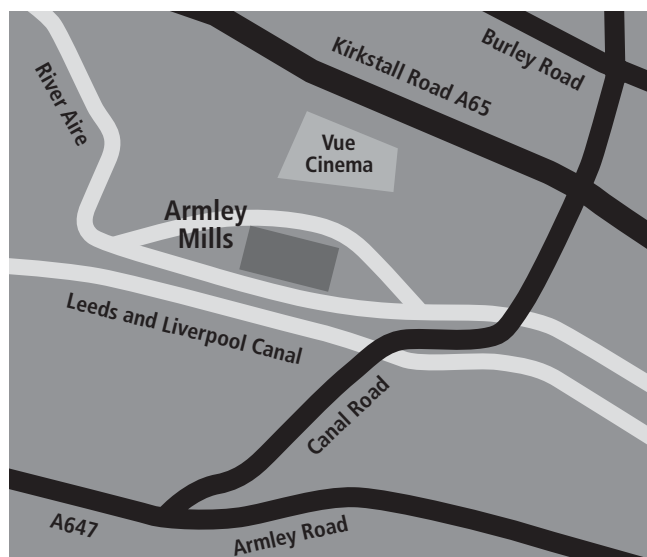
From Leeds City Centre, follow signs for the A65 to Otley and the Airport.

Approximately one mile from the inner ring road, turn left at a set of traffic lights (by the Harley Davidson Garage) onto Canal Road.

The museum car park is 400 yards along on the right, is free and accommodates up to 100 cars. There is disabled parking in front of the museum, which can be accessed by going down the driveway.

Buses from Leeds city centre are the No. 5 leaving from Duncan Street and the No. 67 leaving from Eastgate. Please check that this information is correct before your journey.

When you arrive at the Museum, you will need to make yourself known to the welcome staff at the front desk.



## Access

 Parking	 Guide dogs admitted
 Accessible toilet	 Education room
 Male toilet	 Drink vending machine
 Female toilet	 Shop
 Wheelchair ramp	 Staff available to assist
 Lift	 Picnic area

Wheelchairs available

## Eating Facilities

There are limited lunch spaces in the Museum for groups to eat. Please check availability and reserve a space when making your booking. There are tea/coffee making facilities and a vending machine in the Museum.

## The Museum Code

Teachers remain responsible for their group and their behaviour at all times during led and self-led visits. We do not wish for pupils to be restricted by severe behaviour policies, as you will be able to see from our policy on conduct. We do however, hope that each child will be able to learn and have a positive experience on their visit.

Please refer to the health and safety guidance folder for further details of the conduct policy. A briefing sheet for teachers is also available on request or can be downloaded from [www.leeds.gov.uk/armleymills](http://www.leeds.gov.uk/armleymills).

## Armley Mills – The Collections

The galleries at Armley Mills represent a number of different collections, highlighting the industries on which the success of the city and district of Leeds has been built. These collections, housed in the Galleries and other areas in the Mill, include:

Relating to the Museum's past as a Woollen Mill	Textiles	Tailoring
	Clothing	Mill Manager's Parlour
	Weaver's Cottage Kitchen	Colour Garden

Relating to other important industries in Leeds	Optics & Cinematography	1930s Replica Cinema
	Printing	Tools*
	Models*	Small Engines
	Machine Tools	Locomotives

\* Temporary Exhibition Gallery

### Did you know...?

Interesting facts about the collections include:

#### Textiles

Armley Mills was once the largest woollen mill in the world, exporting its goods to North and South America, Europe and the Far East.

#### Tools and Machine Tools

During the nineteenth century many small, and some giant, engineering companies grew in Leeds, exporting locomotives, cranes, traction engines and other heavy engineering products around the nation and around the globe.

#### Printing

Leeds has had its own newspaper since 1718 when the 'Leeds Mercury' first came into print. Waddingtons (yes Waddingtons who made the game Monopoly) was a Leeds-based company.

#### Steam Power

There were several companies in Hunslet which built steam powered machines that went all over the world.

#### Optics and Cinematography

The first ever moving image or 'film' was taken by a French man here in Leeds.

Armley Mills Museum has its very own replica 1930s cinema.

#### Tailoring

Ever heard of the expression, 'The Full Monty'? Montague Burton of Burtons, founded in Leeds, offered men the chance to buy a full suit, which included jacket, trousers, waistcoat, shirt and underwear which was a new concept back in the 1950s. Thus, it is assumed that this is where the term 'the Full Monty' originated. Burton menswear still exists as a high street retailer in Britain today.

#### Water Power

If there was too much rain, water levels would grow too high and the backflow would cause the waterwheels at the Mills to stop working.

For more information on the Mill, its collections, figures and history, have a look on our websites:  
[www.leeds.gov.uk/armleymills](http://www.leeds.gov.uk/armleymills)  
[www.mylearning.org](http://www.mylearning.org)

# Background Information

## The Birth of Armley Mills

The earliest record of Armley Mills dates from the middle of the sixteenth century when local clothier Richard Booth leased 'Armley Millnes' from Henry Saville. A document of 1707 provides the first description of the mills. 'That Fulling Mill in Armley...containing two wheels and four stocks... also the water corn mill and all the fulling mills adjoining... containing one wheel and two stocks.' By 1788 Armley was equipped with five waterwheels powering eighteen fulling stocks.

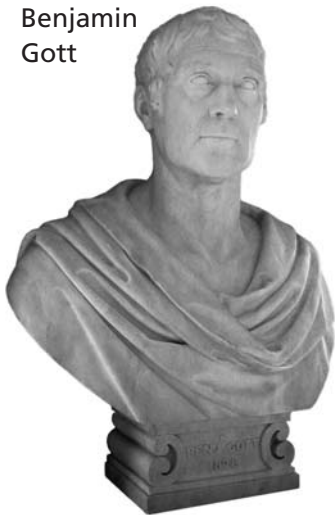
*'Armley Mill...no situation in the West Riding of Yorkshire is superior if any equal'*

Notice of Sale, Leeds Intelligence, 5th February 1788

## Founding Fathers

In 1788, Armley Mills was bought by Colonel Thomas Lloyd, who turned it into the world's largest fulling mill. Lloyd was a Leeds cloth merchant who had prospered and risen to

become Deputy Lieutenant of the West Riding and Commander of the Leeds Volunteer Infantry. In 1804, Benjamin Gott agreed to buy Armley Mills from Colonel Lloyd, but in November 1805 the mill was almost entirely destroyed by fire. Gott re-built the mill from fireproof materials, using brick and iron wherever possible. It is Gott's mill which survives largely intact to this day.



Benjamin Gott

Gott was a major figure in the history of Leeds and the wool industry in general and was active in local politics, becoming mayor in 1799. He was also a leading and enthusiastic patron of the arts.

*'No-one in the West Riding stood higher as a man of business. He possessed large stores of information, a vigorous intellect, remarkable decision of character, and a fine taste.'*

*'No man was ever more regarded or esteemed in his circle than Mr Gott.'*

From the Obituary of Benjamin Gott (1840)

## Working from Home

Although Colonel Lloyd re-built Armley Mills in 1788 he did not personally run the Mills, instead they were leased to Israel Burrows and Christopher Hill. Hill was later replaced by Israel's brother John and the pair lived in two newly built semi-detached houses above the Leeds and Liverpool Canal.

The central part of the house was composed of living rooms and bedrooms, while the shorter wings at either end contained kitchen, cellars, and on the first floors loom shops where the brothers are believed to have made their own cloth for fulling in the nearby Mills. The current displays are not intended to reproduce the original décor but to highlight the differences in lifestyle between a wealthy mill manager and a working class weaver.

## Full Steam Ahead

Armley Mills prospered under Gott's management exporting its wares to North and South America, Europe and the Far East. Gott became one of the largest employers in Britain, as well as one of the most wealthy. He died in 1840 and his sons John and William took over the business. They introduced the first steam engine to Armley Mills in 1850 to supplement, not replace, the waterwheels which continued operating into the 1880s. From the 1860s the mill was leased to Kinnear, Holt and Company who installed spinning machinery. During the 1880s and 1890s various tenants occupied the mills engaged in a variety of trades usually, though not always, related to the textile industry. Then in 1907 the firm Bentley and Tempest took over the whole building.

## Decline and Closure

In 1907 the woollen clothing manufacturers Bentley and Tempest, who had been one of several tenants became the sole



## Background Information (continued)

occupiers of Armley Mills. Ironically, one of the firm's founders, Steward Tempest, had begun his working life at Armley Mills as a 'half timer'<sup>1</sup> at the age of 6 in the 1840s. Like many other textile mills, Armley could not cope with the combination of the loss of markets as the British Empire split up, the increase in competition from abroad and the increasing use of man-made fibres. In 1969, the mill finally closed as a business and, in recognition of its historic importance, was bought by Leeds City Council, re-opening in 1982 as Leeds Industrial Museum.

### A City Built on Wool

Leeds, situated between the hill farms of the Pennines and the crop producing areas of the East Riding, has a long history of involvement in the wool trade. Originally, the cloth market was actually held in the open air on Leeds Bridge, before moving in the eighteenth century into a series of purpose-built cloth halls.

Leeds' position as a centre of the cloth trade was greatly enhanced by the opening of navigable waterways, the Aire and Calder Navigation in 1701 and the Leeds/Liverpool Canal in 1816, these provided a direct link between Leeds and its customers and suppliers in Australia, Europe and the Americas.

*'The great woollen manufacture... which extends to the most distant extremities of the Empire is principally concentrated in Leeds'*

Parliamentary Gazette 1842

### Dark Satanic Mills

In 1801 there were about 20 factories in Leeds, not all of them textile mills. By about 1838, there were 106 woollen mills alone, employing 10,000 people. The new mills replaced traditional skilled workers. Leeds was transformed into a major city, creating extremes of wealth alongside poverty, cultural opportunities alongside environmental devastation, learning alongside ignorance. Working conditions in the mills were at first unregulated and frequently appalling, children were particularly vulnerable to exploitation and abuse, working long hours in terrible conditions. In one notorious case in 1832, a child died in a Leeds mill when he was not allowed to stop work to go to the toilet.

*'They were beat with a strap. We had them of all ages...there has been many a one badly beat with strapping in my room. I have seen them flogged while they had marks on them, boys and girls both'*

Evidence to the Royal Commission from Mark Best, Overlooker at Marshall's Mill, Leeds (1833)

### Heavy Metal

The demand for machinery and equipment produced by the textile industry created opportunities for engineers in Leeds. One of the first was Matthew Murray, who after helping John Marshall introduce machinery into the flax spinning industry, was a leading figure in establishing the company of Fenton, Murray and



Bird's Eye View of the Town of Leeds, 1875 (detail)



Women workers in the clothing industry

Wood at the Round Foundry in 1795. Here they produced textile machinery, steam engines and locomotives, including the world's first commercially successful steam locomotive which came into service in 1812 for the nearby Middleton Colliery. During the nineteenth century many small and giant engineering companies grew in Leeds. They exported locomotives, cranes, traction engines and other heavy engineering products around the nation and around the globe.

By 1861, engineering was the second largest employer in the city and by 1900 the biggest, employing 20% of the male workforce.

The firm of Boulton and Watt in Birmingham were so alarmed by Matthew Murray establishing a works in Leeds that they bought an adjoining property in an effort to prevent the company expanding, they also engaged in blatantly spying or, as it is now known, industrial espionage.

### **Off the Peg**

In the second half of the nineteenth century, the woollen industry in Leeds declined in the face of competition from other growing towns like Bradford. Another textile related industry appeared to take its place, often in the mills abandoned by the woollen manufacturers – ready-made clothing. The inspiration behind this new industry came from John Barran. Barran came up with the revolutionary idea of off the peg, ready-made clothing.

In the 1850s Barran applied new technology to the industry introducing Singer sewing machines and, more innovatively, a new type of band knife made by Leeds engineers Greenwood and Batley.

The industry flourished in Leeds with a number of companies involved who later became household names, such as Burtons and Hepworths. The big clothing factories were supplemented by large numbers of sweatshops where Jewish immigrants, driven from Russia and Poland after 1881, provided a cheap workforce. The importance of the industry can be gauged from the fact that by 1911 a quarter of women workers in Leeds were employed in the clothing industry.

*'Avoid the severe style of the income tax collector and the smooth tongue of the fortune teller. Cultivate the dignified style of the 'Quaker tea blender' which is the happy medium.'*

Advice to sales staff, Montague Burton

### **Hot Off the Press**

The first known printer in Leeds was John Hirst who, in 1718, began printing the 'Leeds Mercury' newspaper. In 1810, there were still only eight printing houses in Leeds but in the next decade the numbers mushroomed. By 1911 printing was the fourth largest employer in Leeds, employing 8000 people.

Printing was, and remains one of Leeds most important industries, both because of the number of small and large printing houses and the local engineering companies which produced printing machinery and equipment. Advances by Leeds printing engineers gave the city's industry an early advantage in colour printing.

Leeds printing engineers like Crabtree's exported printing presses all over the world, and the small town of Otley to the north west of Leeds became famous for printing press manufacturers and the 'Wharfedale' press.

Notable Leeds printers included Alfred Cooke's, which was established in 1866 and by 1895 had built the world's largest print works and enjoyed Royal patronage (the building still stands on Hunslet Road). Another famous Leeds printing company was John Waddington Ltd, which started life printing posters for the theatre around 1900 and then diversified into games and packaging, most notably Monopoly in 1935. By 1993, Waddingtons employed 2700 people in Leeds and exported their products all over the world.

# The Textiles Process – From Fleece to Fashion

SHEEP  
HANDLING  
PROCESS

TEXTILES PROCESS

## Shearing & Grading

Shearing the wool from the sheep's back (once a year) and placing into groups of the same type and quality, ready for sale by auction.

## Washing & Scouring

Washing the wool to remove grease and dirt.

## Carding

A combing technique, removing dirt and grease from raw or washed fibres and aligning the fibres in the same direction in preparation for spinning.

## Spinning

Turning these carded fibres into a continuous thread (yarn). Originally carried out by hand using a spinning wheel, the spinning jenny then came into place followed by the spinning mule. Examples of all can be found in the mill.

## Warping

Preparing the threads for the loom. Warp yarn is used as the basis for weaving cloth. This is laid down the length of the fabric.

## Weaving

Weaving is the process of making cloth, rugs, blankets, and other products by crossing two sets of threads over and under each other. Yarn is interwoven across the warp threads to make solid fabric.

## Mending

Woven cloth may have faults. These have to be repaired.

## Finishing

Woven cloth is stabilised by wet and dry processes to set it.



Mule spinning



Hand warping



Machine warping



### Fulling

Later referred to as 'Milling'. The thickening and cleaning of newly woven cloth in woollen processing. Fullers were often as referred to as 'walkers' as the cloth was literally pounded with the fuller's feet. Fulling was originally carried out using urine which is a source of ammonium salts, and assisted in cleansing the cloth.

### Dyeing

Adding colour between any of the stages in wool processing. Frequently carried out after fulling as both are wet processes.

### Raising

Raising involves lifting the pile of the yarn of a woven or knitted fabric. The pile is often referred to as the nap.

### Shearing or Cropping

Using cropping shears, the nap would be cut off, removing all projecting fibres from the surface of the cloth, and so impart a clean, smart appearance.

### Pressing

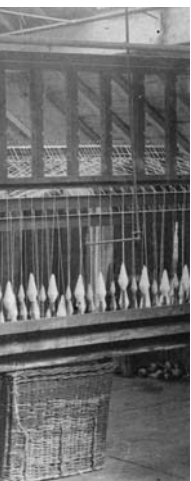
As it says on the tin! Hot iron presses would be used to press the cloth and get rid of any creases.

### Cutting

Originally carried out by hand using card templates.

### Sewing

Individual cloth pieces are sewn together to make garments such as trousers, shirts and dresses. Cloth pieces were originally hand sewn together. This was later largely taken over by sewing machines. One such brand that has lasted since 1851 are Singer Sewing machines which are on display in the museum.



Weaving

Fulling or milling

## The History of Armley Mills – A Timeline



**1708**

The first description of the Mill dates back to this date. Its close location to water for power and transport and its proximity to trade in the city centre made it a prime site.

**1788**

In 1788, it was bought by Colonel Thomas Lloyd who was a leading and influential cloth merchant.

**1804**

In 1804 he sold to another influential businessman, Benjamin Gott. Gott was a major figure in the history of Leeds and the wool industry and was active in local politics, becoming mayor in 1799. He was also a leading and enthusiastic patron of the arts.

**1805**

Disaster struck in 1805 when a fire virtually destroyed many of the buildings. Gott, determined this would never happen again, used fireproofing technology and re-built in brick and iron. It is Gott's mill which survives largely intact to this day.

**1850**

In 1850 the first steam engine was installed. It worked with the waterwheel to power and speed up production.

**1860s**

From the 1860s the mill was leased to Kinnear, Holt and Company who installed improved spinning machinery.

**1907**

After becoming tenants in the 1880s, the firm Bentley and Tempest took over the whole building in 1907. Bentley and Tempest produced woollen cloth and exported it around the world. They employed approximately 150 people in all stages of production.

**1969**

With competition from abroad and the increasing use of man-made fibres, the company began to suffer after the Second World War. In 1969 the firm closed – signalling the end of a chapter in the history of the mill.

**1982**

In 1982, Armley Mills re-opened as Leeds Industrial Museum. Although the cityscape has changed, the buildings of Armley Mills today stand as a proud reminder of the city's heritage.

## Web Resources

As a service we are constantly developing and evaluating our learning resources and materials for the web. Two of the primary outlets are the Leeds Museums website and the MyLearning website.

### Leeds Museums and Galleries website

In 2008, and for the first time, Leeds Museums and Galleries Service has a comprehensive web site that serves all of its sites. The 'Treasury of Learning', (the Service's formal school's learning programme) is available to search, by site or subject, via this website. Furthermore, blogs, podcasts, interactives, quizzes and tours are examples of some of the other resources that will be available from this site.

### MyLearning

MyLearning features resources inspired by museum, library and archive collections in Yorkshire, presented as Learning Journeys and designed to support different curriculum subjects and ages.

Leeds Museums and Galleries contribute content regularly to this site and you will also be able to find other relevant content from other Museums, Libraries and Archives across the Yorkshire Region.

A few examples of the Learning Journeys created by Leeds Museums and Galleries are:



### Be a Victorian Millionaire (Enterprise Education)

Find out about local entrepreneur and Mill owner, Benjamin Gott and then face some of his business decisions and find out how you might have fared!



### Customer Services (Leisure & Tourism)

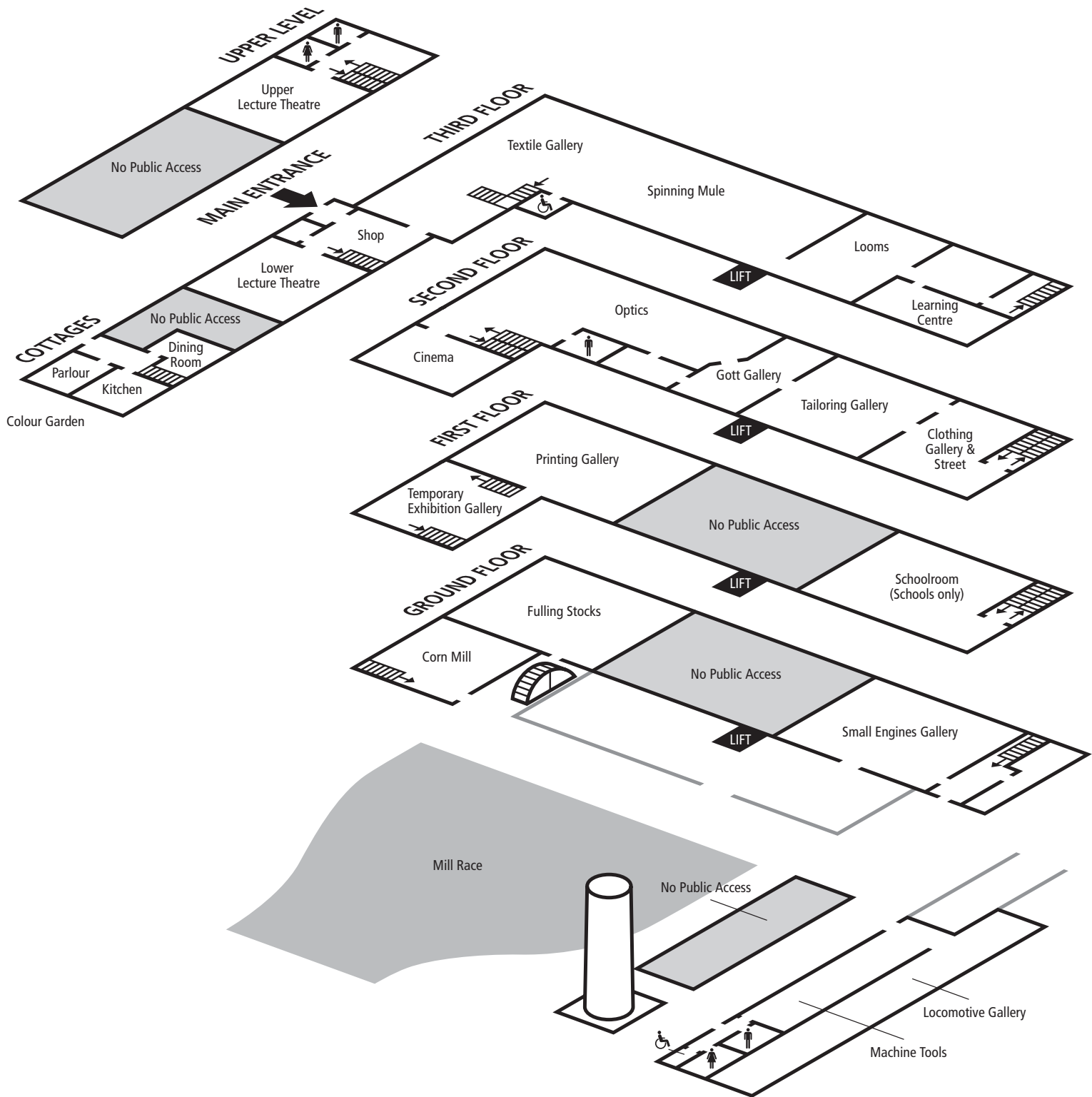
Discover information, images, video and downloadable resources to support Customer Service schemes of work.



### Back to the 50s... (History & Citizenship)

Take a trip through the past and explore video footage of life in the 1950s in Yorkshire. This content was put together by pupils from St. Bartholomew's Primary School, in Armley, as part of a project with the Yorkshire Film Archive.

# Map and Floorplan of Armley Mills Museum



We hope you enjoy your visit!