1B

Based on **pages 4 and 5** of *How life changed in Victorian times*

Spinning and weaving

Spinning and weaving are two processes in the making of cloth. During the Industrial Revolution these processes moved out from people's homes and into factories called mills.

Cloth is made from threads called yarn. The yarn is made by twisting tiny fibres together. This process of twisting the fibres is called spinning. Wool fibres from sheep are spun into woollen yarn and cotton fibres from the seeds of the cotton plant are spun into cotton yarn. Before the Industrial Revolution a person spun yarn with a spinning wheel. They rocked a plate called a treadle with their foot to make the wheel turn and drew out the fibres and twisted them.

A loom is used to weave the yarn. There are two kinds of yarn. They are called warp and weft. Warp is arranged in a large number of horizontal lines – each one parallel to the next. Some of the warp threads can be raised and lowered. A yarn called weft is threaded through the warp in a device called a shuttle. Weaving takes place when the warp is raised and lowered and a shuttle passes backwards and forwards between the warp threads leaving a line of weft behind it. This thread is woven into the warp. Weaving was a slow process in which the weaver pushed and pulled on all the parts of the loom but in 1740 John Kay invented the flying shuttle which speeded it up.

Many other inventions began to be made to speed up both spinning and weaving. In 1764 James Hargreaves invented a machine called the spinning jenny which spun yarns for weft much faster than a spinning wheel. In 1769 Richard Arkwright invented a machine called the water frame which spun yarns for warps much faster than before. The water frame was too large to use in a house so Arkwright built a special building in which it could be assembled and used. This building was the first spinning factory.

The new machines spun so much yarn that the weavers could not weave it fast enough to use it up. People began to look for faster ways to weave and in 1786 Edmund Cartwright invented the power loom. It could be driven by wheels connected to a steam engine. Buildings were made in which large numbers of looms and a steam engine were set up. These buildings were known as mills. Some mills became so large hundreds of people worked in them. They moved the warp and weft about, made sure the machinery kept working and the quality of the cloth was good and moved the finished cloth away to be sold.

1B

Teacher's sheet

Spinning and weaving

Age range

- Years 3/4 (SP4/5).
- Years 5/6 (SP6/7).

Resources

Copies of the worksheets. Pieces of cotton wool. Pictures of a spinning wheel and hand loom Pictures of spinning machines and looms in mills in Victorian times.

Using the worksheet

If you introduced the students to some of the raw materials of the Industrial Revolution in the previous activity you may like to continue with this approach and introduce them to the process of twisting fibres to make a yarn. The students could pull out some fibres slowly from a piece of cotton wool and twist them between a thumb and a finger. They could also pull out some fibres and roll them on the thigh to twist them. These two ways of twisting fibres could be compared. It is important to stress that spinning was not done using these techniques but they show how fibres could be twisted together.

Read through the text with the students and stop to show them your pictures. You may wish to include more.

The detail given about the weaving process aims to show that it was a complex process and that people who worked in mills not only had to carry out physical work but also had to have some knowledge of the processes involved and be able to correct the processes when machinery failed.

Younger students

The students could answer the questions on page 30 to test their comprehension of the text.

Answers

1. Spinning.
2. From the seeds of the cotton plant.
3. Loom.
4. Richard Arkwright.
5. Looms and a steam engine.

Outcomes

The students can:

- Know that spinning and weaving are important processes in the making of cloth.
- Extract information from a text.

Older students

If the students have constructed a timeline in answer to question 3 in the previous activity, they may like to add it to this timeline in answer to question 4 here.

The students could answer the questions on page 31 to test their comprehension of the text.

Answers

1. In people's homes.
2. Warp is the horizontal lines of thread. Weft is threaded through the warp.
3. A shuttle weaves the weft threads through the warp as it passes backwards and forwards and the warp threads are raised and lowered.
4. A timeline with the correct distance between John Kay (1740), James Hargreaves (1764), Richard Arkwright (1769) and Edmund Cartright (1786).
5. Move warp and weft about.
   Make sure machinery keeps working.
   Check quality of cloth.
   Move finished cloth away to be sold.

Outcomes

The students can:

- Know that spinning and weaving are important processes in the making of cloth.
- Extract information from a text.
- Make a simple timeline.

See **1B: Spinning and weaving**

Questions (i): Spinning and weaving

1. What is the twisting of fibres to make a yarn called?

✎ .....

2. Where do cotton fibres come from?

✎ .....

3. What machine is used to weave cloth?

✎ .....

4. Who built the first spinning factory in the Industrial Revolution?

✎ .....

5. What machines were set up in a mill?

✎ .....

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1B

Teacher's sheet

Questions (ii): Spinning and weaving

1. Where did spinning and weaving take place before the Industrial Revolution?

✎ .....

2. How are warp and weft different?

✎ .....

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3. What does a shuttle do?

✎ .....

4. Make a timeline linking Cartwright, Hargreaves, Kay and Arkwright.

5. If you went to work in a mill what jobs might you expect to do?

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