1. Link the pictures to the words.

Before the steam engine, power was provided by

- [Image] City Chambers, Glasgow, Scotland (photo taken by Maria del Roser Pujadas Jubany)
  - animal energy

  - water energy

  - human energy

  - wind energy

2. Watch and listen to the PowerPoint presentation “Steam Power”.
3. Choose the correct answers. Compare them with your partner.
   
a. Who said the phrase “What all the world wants – power”?
   I. James Watt
   II. Matthew Boulton

b. The first factories were built near
   I. fast-running streams and rivers.
   II. mountains and lakes.
   III. villages on the coast.

c. The first factories drove machinery by
   I. wind power.
   II. water power.
   III. human power.

d. Watt’s improvements to the steam engine were among the greatest achievements of the
   I. 17th century
   II. 18th century
   III. 19th century

e. Watt’s improvements to the steam engine made it possible to use steam power to drive
   I. railway locomotives, and later, factory machines and steamships.
   II. steamships, and later, railway locomotives and factory machines.
   III. factory machines, and later, railway locomotives and steamships.

4. Match the beginnings and endings to make sentences. Work individually and then discuss your answers.

   A                  B

a. Steam power played a large part in the Industrial Revolution without it, 1. need a constant stream of fast-flowing water.
b. The most important engineering, transport and business developments 2. needed far more dependable power sources.
c. One of the most outstanding engineers of the time 3. industrialisation would have been impossible.
d. Water-driven machines 4. was James Watt (1736-1819).
e. Improved machinery 5. was the answer.
f. The steam engine 6. used mainly hand power.
g. The domestic system 7. were all connected to the steam engine.

   a - ____ ;   b - ____ ;   c - ____ ;   d - ____ ;   e - ____ ;   f - ____ ;   g - ____
5. Write down the sentences, then watch and listen to the PowerPoint presentation again and check the sentences.

a. Steam power played a large part in the Industrial Revolution without it, __________________________.

b. The most important engineering, transport and business developments __________________________

c. One of the most outstanding engineers of the time __________________________

d. Water-driven machines __________________________

e. Improved machinery __________________________

f. The steam engine __________________________

g. The domestic system __________________________

6. Read the passage and the words from the box. Check that you understand all the vocabulary. Then fill each of the numbered blanks with one suitable word from the box. Work in pairs.

<table>
<thead>
<tr>
<th>slow</th>
<th>steam</th>
<th>wheel</th>
<th>factories</th>
<th>engineers</th>
<th>workmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>cotton</td>
<td>power</td>
<td>trains</td>
<td>invented</td>
<td>engine</td>
<td>needed</td>
</tr>
</tbody>
</table>

The most important of the iron machines was the steam (1) _________ . The looms and spindles of the mills were driven by (2) _________. Steam engines pumped water from the mines, and hauled out men and coal. Railway (3) _________ were drawn by steam engines on wheels.

From 1700, steam engines were used to pump water out of mines. But they were (4) _________ and used a lot of coal. In the 1770s and 1780s, James Watt, a Scotsman, (5) _________ a much better engine. It needed less coal, and it could do more than just work a pump. Watt’s engine could also turn a (6) _________, which meant that it could drive machines.

Watt’s engines were made in Birmingham at Matthew Boulton’s workshop. They were made one at a time at first –there were not enough skilled (7) _________ to make the parts for more. By 1800 a few hundred were in use, in mines, (8) _________ mills, and iron works.

The spread of steam (9) _________ took place mainly after 1800. As more (10) _________ were built, more steam engines were (11) _________ . More (12) _________ became skilled in making boilers and pistons. New firms followed Boulton’s lead, supplying engines to all parts of Britain and selling them abroad.

(Text adapted from ROBSON, Walter: British History 1066-1900, Access to History, For the revised Key Stage 3, Oxford University Press 1995, pages 202-203).
7. Find words in the previous passage that match the following definitions.

a. a hard strong metal (line 1) =

b. a rod that turns in a machine, or that another part of the machine turns around (line 2) =

c. a factory that produces a particular type of material (line 2) =

d. move water, air, gas, etc with a pump (line 2) =

e. a hard black mineral that is found below the ground and burnt to produce heat (line 3) =

f. a machine that is used to force liquid, gas or air into or out of something (line 8) =

g. a room or building in which things are made or repaired using tools or machinery (line 10) =

h. having enough ability, experience and knowledge to be able to do something well (line 11) =

i. a container in which water is heated to provide hot water and heating in a building or to produce steam in an engine (line 16) =

j. the part of an engine that consists of a short cylinder that fits inside a tube and moves up and down or backwards and forwards to make other parts of the engine move (line 16) =

8. Read the passage again. Answer the following questions using sentences.

a. Did James Watt invent the steam engine or improve it? Explain your answer.

b. Where did he make his steam engine?

c. How many steam engines were made at first?

d. Why was it possible to get more steam engines after 1800?

e. Is there a job mentioned in the passage? Which one?
9. Find out more about James Watt. Use the school library or the internet to research about his life. Summarize the information about him. The following questions may help you but you can add extra information if you want. Do this exercise in pairs.

- When and where was he born?
- When and where did he die?
- What was his job?
- Where did he live?
- Where did he set up a workshop?
- When did he meet Matthew Boulton?
- What was ‘Boulton & Watt’?

James Watt, Glasgow Green, Glasgow, Scotland
(photo taken by Maria del Roser Pujadas Jubany)

MATTHEW Boulton's magnificent Soho Manufactory in Birmingham and, right, the hive of activity inside the factory.
http://www.cottontimes.co.uk/cottonpix/wattstrip.gif
10. Linking British and European history.

10.1. Work in pairs. Look in reference books like an encyclopaedia or use the internet to find information about the kind of energy used in Europe in the 18th and 19th centuries. Complete the chart. Leave blanks if needed.

<table>
<thead>
<tr>
<th>Country</th>
<th>Energy</th>
<th>Main industries</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britain</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>France</td>
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<td>Belgium</td>
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<td>Prussia / Germany</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
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</tbody>
</table>

10.2. Compare your chart in groups of four.
10.3. **Answer the following questions about the different kinds of energy used in Europe in your group of four.**

   a. Which country or countries used water power?

   b. Which country or countries used human energy?

   c. Which country or countries used wind power?

   d. Which country or countries used animal energy?

   e. Which country or countries were the first to be industrialised after Britain?

   f. Which country or countries were the last to be industrialised?

10.4. **Answer the following questions about the use of the steam engine in Europe in your group of four.**

   a. Which European country was the first to use steam power (apart from Britain)? When?

   b. Which European country was the last to introduce steam power? When? Do you know why?

   c. What did steam power start driving first in most European countries? Why?
      
      I. Factory machines
      II. Railway locomotives
      III. Steamships.