Environmental Impact of the Industrial Revolution

Urbanization
1. New districts of identical rows of houses built quickly and cheaply to house factory and foundry workers in rapidly growing industrial towns
2. Expansion of small villages near coalfields into new industrial towns
3. Much poor quality housing—densely packed, with little sunlight and few amenities

Air Pollution
1. Dense fog of soot and noxious waste gases covered towns built around iron and steel works
2. Increased pneumonic diseases.
3. Houses and clothing difficult to keep clean because of soot

Water Pollution
1. Rivers and canals polluted by sewage and industrial waste
2. Cholera killed many poor people who used water from canals and rivers for cleaning and cooking (57,000 people died in the 1832–34 cholera epidemic in Great Britain)

Noise
1. Disruption for people living around iron works and cotton mills from noisy steam or water-powered machines running day and night
2. Deafness common among industrial workers and inhabitants of industrial towns

Cities in the Industrial Revolution

1. huge growth in the size of British cities → In 1695, the population of Britain was estimated to be 5.5 million. By 1801, the year of the first census, it was 9.3 million and by 1841, 15.9 million. This represents a 60% growth rate in just 40 years.
2. As enclosure and technical developments in farming had reduced the need for people to work on farmland, many people moved to the cities to get accommodation and a job. These cities were not prepared for such an influx in such a short period of time → suffered problems not witnessed anywhere else in the world at this time.
3. These cities needed cheap homes as the Industrial Revolution continued to grow. There were few building regulations then and those that did exist were frequently ignored. Profit became the main motivator for builders. Therefore, a house was put up quickly and cheaply – and as many were built as was possible. The Industrial Revolution saw the start of what were known as back-to-back terrace housing. These had no garden and the only part of the building not connected to another house would be the front (and only) entrance (unless you were lucky enough to live in the end of the terrace).
4. The building material used was the cheapest a builder could find. Cheap slate from Wales was commonly used. The finished homes were damp and those who could only afford cellar dwellings lived in the worst possible conditions as damp and moisture would seep to the lowest part of the house.
5. None of these homes was built with a bathroom, toilet or running water. You either washed in a tin bath in the home with the water being collected from a local pump or you simply did not wash. Many didn’t wash as it was simply easier.
6. There would be a courtyard between each row of terraces. Waste of all sorts from the homes was thrown into the courtyard and so-called night-men would collect this at night and dispose of it. Sanitation and hygiene barely existed and throughout the eighteenth and nineteenth centuries the great fear was a cholera, typhus or typhoid epidemic.
7. **Toilets would have been nothing more than cesspits.** When these were filled they had to be emptied and what was collected was loaded onto a cart before being dumped in a local river. This work was also done by the night-men. Local laws stated that their work had to be done at night as the stench created by emptying the cesspits was too great to be tolerated during the day.

8. A block of 40 houses would have possibly 6 toilets for all persons. It is estimated that on average 9 people lived in one house, which would mean that 6 toilets served 360 people! Another problem was that it was the responsibility of the landlord of the house to pay to have cesspits emptied and they were never too enthusiastic to do this. No one in local authority enforced the law and as a result, courtyards could literally flood with sewage.

9. **Drainage systems** would have changed all of this but they cost money. Drainage pipes had to be made out of brick as no pipes existed then. The poor could not pay and the wealthier members of a city were not willing to pay for such an expensive item if it did not benefit them. Liverpool had a drainage system built but only in the areas where the rich merchants and businessmen lived. None existed in the areas where the poor lived.

10. **Fresh water supplies** were also very difficult to get in the poor areas. With no running water supplies, the best people could hope for was to leave a bucket out and collect rainwater. Some areas were lucky enough to have access to a well with a pump but there was always the chance that the well water could have been contaminated with sewage from a leaking cesspit.

11. Those who lived near a river could use river water. However, this is where night-men emptied their carts full of sewage and where general rubbish was dumped. Any water collected would have been diluted sewage.

**Why was so little done to improve towns and cities in Britain’s industrial zones?**

1. The mills, factories, mines etc. were all owned by wealthy men who were also highly influential in a city.
2. Magistrates, who could ensure laws were carried out, rarely did if only the poor were affected.
3. Those with money lived well away from the areas the poor lived in. Any money spent on improving the workers living areas would have been seen as lost profit.
4. Not all cities were blighted like this. However, the norm was that the power base within a city or large town rested with those who ran whatever industry was making that city wealthy. If they resisted change, then little could be done about it.

**Diseases in industrial cities in the Industrial Revolution**

1. With a chronic lack of hygiene, little knowledge of sanitary care and no knowledge as to what caused diseases (let alone cure them), diseases such as cholera, typhoid and typhus could be devastating. As the cities became more populated, the problem got worse.

2. **Cholera** was a greatly feared disease. Caused by contaminated water, it could spread with speed and with devastating consequences. Not for nothing did the disease get the nickname "King Cholera". Industrial Britain was hit by repeated outbreak of cholera. The cause was simple – sewage was being allowed to come into contact with drinking water and contaminating it. As many people used river water as their source of drinking water, the disease spread with ease.
3. **Smallpox** made a major re-occurrence in industrial cities even after Edward Jenner’s vaccine. The reason was simple: very many in the industrial cities were ignorant of the fact that Jenner had developed a vaccine. Also the overcrowded tenements of the cities were a perfect breeding ground for smallpox.

4. **Typhoid and typhus** were as feared as cholera. Typhoid was caused by infected water whereas typhus was carried by lice. Both were found in abundance in industrial cities.

5. The greatest killer in the cities was **tuberculosis** (TB). The disease caused a wasting of the body with the lungs being attacked. The lungs attempt to defend themselves by producing what are called tubercles. The disease causes these tubercles to become yellow and spongy and coughing fits causes them to be spat out by the sufferer.

6. TB affected those who had been poorly fed and were under nourished. It also affected those who lived in dirty and damp homes. TB can be spread by a person breathing in the exhaled sputum of someone who already has the disease. In the overcrowded tenements of the industrial cities, one infected person could spread the disease very easily.

7. Though accurate records are difficult to acquire, it is believed that TB killed **one-third** of all those who died in Britain between 1800 and 1850.

8. Microbes were only discovered in 1864 by Louis Pasteur. Until that time all manner of theories were put forward as to what caused diseases. A common belief - and one that dated back to Medieval England – was that disease was spread by bad smells and invisible poisonous clouds (**miasmas**). Industrial cities were certainly plagued by poor smells from sewage, industrial pollutants etc. The majority of deaths were in the industrial cities. Therefore, doctors concluded, the two went together: death and bad smells/gasses.

9. Such beliefs caused serious problems. In Croydon, typhoid swept through the town in 1852. The local Board of Health went about looking for a smell that caused the disease but found nothing. In fact, sewage had seeped into the town’s water supplies and contaminated the water. It did not occur to the health officials that the water could be the cause of the disease as medical wisdom of the time dictated another cause.

10. Even a great reformer like Edwin Chadwick was convinced that disease was carried in the atmosphere which had been poisoned by foul smells. In 1849, he persuaded the authorities in London to clean up the sewers in their districts. This, so Chadwick believed, would get rid of the bad smells and therefore disease. Each week an estimated 6000 cubic yards of filth was swept into the River Thames – London’s main source of water. Cholera was given a chance to spread and 30,000 Londoners got the disease in 1849 with 15,000 dying as a result.
INDUSTRIAL REVOLUTION – Loose Ends & Concluding Thoughts:

Advances in Scientific Knowledge - Science continued to gain ground, but many other intellectual movements attempted to explain reality.

- The size of the intellectual and artistic community expanded and found a growing market for its products. Most of the activity was secular. Western cultural activity had been built on traditions of rationalism and the continuing advances in science kept the tradition alive.
- Darwin offered evolutionary theory in biology and Einstein advanced the theory of physical relativity.
- The social sciences advanced as a means of gathering empirical knowledge concerning human affairs. Freud developed his theories of the workings of human unconsciousness.

Emphasis on Consumption and Leisure – Western culture changed because of consumer emphasis and developments in science and the arts. Higher wages and increased leisure time produced important alterations in popular culture.

- Many working class males and female accepted middle class values. The idea grew that pleasure was legitimate part of life.
- The productive capacity of factories meant that consumption had to be encouraged. Product crazes occurred; the stimulated consumerism overcame older customs hindering pleasure seeking.
- Mass leisure culture emerged with popular newspapers, entertainment, and vacations. Leisure had become a commodity to be regularly enjoyed.
- The rise of disciplined team sports was one aspect of the change.
- All the popular interests demonstrated a growing secularism present in all aspects of life.

Change-Over-Time Themes - 1750-1914:

- The Industrial Revolution brought great changes to Western economy and society. The West was able to acquire hegemony - through colonization or economic dependence - over most other world civilizations. All civilizations had to come to terms with Western institutions and values.

- The period begins around 1750 when the forces shaping the Industrial Revaluation emerged: population growth, expansion of manufacturing, a surge of inventions. The era closed with the beginning of World War I in 1914 because the conflict fundamentally weakened the Western world.

- The many changes resulted in huge shifts in world population structures as peoples moved from their home areas. In the West and the United States birthrates fell as machines altered the role of children in society.

- During this complex period themes of change are not confined to Western industrialization and imperialism. Individual civilizations continued to experience distinctive developments.