Class: 12th

Subject: English

Lesson 2: USING THE SCIENTIFIC METHOD

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❖ Exercise Short Questions:

1. How has the scientific method helped us in our fight against disease?

Ans: The scientific method has helped us understand the causes of diseases through observation and experimentation. It led to the discovery of germs,

vaccines, antibiotics, and proper medicines. As a result, many deadly diseases like smallpox and polio have been controlled or eradicated.

2. Write a note on the better sanitary conditions available in our cities today and compare them with what they were like a hundred years ago.

Ans: Today, cities have proper sewerage systems, clean drinking water, garbage disposal, and public health services. A hundred years ago, there were open drains, polluted water, poor waste management, and frequent outbreaks of diseases like cholera and plague. Modern sanitation has greatly improved public health.

3. What are the sanitary conditions like in our villages today and how would you improve them?

Ans: Many villages still lack proper sewerage systems, clean water, and waste disposal facilities. Open defecation and stagnant water are common problems. These conditions can be improved by providing clean water, building toilets, proper drainage systems, and educating people about hygiene.

4. How has the scientific method helped us in the production and preservation of foods?

Ans: Science has improved food production through better seeds, fertilizers, and farming techniques. Food preservation methods like refrigeration, canning, drying, and pasteurization prevent food from spoiling. These methods ensure food safety and availability for longer periods.

5. We are now generally less fearful than our ancestors. What were our ancestors afraid of?

Ans: Our ancestors were afraid of natural events like earthquakes, floods, storms, eclipses, and diseases. They believed these events were caused by angry gods or evil spirits because they lacked scientific knowledge.

6. How has the scientific method enabled us to get over the old fears?

Ans: The scientific method explained natural phenomena through observation and reasoning. It showed that diseases are caused by germs and natural events follow scientific laws. This knowledge removed fear and replaced it with understanding and confidence.

7. What part did astrology play in the lives of men and women in the past? Give examples.

Ans: In the past, people believed astrology controlled their lives. Important decisions like marriage, travel, and business were made after consulting astrologers. People believed that stars and planets influenced their fate.

8. Describe some of the superstitions still current in our country. How do they affect the lives of those who believe in them?

Ans: Some common superstitions include belief in lucky charms, evil eye, black cats, and fortune tellers. These beliefs create fear, waste money, and discourage rational thinking. People may avoid making decisions without consulting superstitious practices.

❖ Important Short Questions:

1. How was water supplied to homes in cities a century ago?

Ans: A century ago, water was brought to homes from wells in buckets. People had to carry it themselves, often from a long distance.

2. Why was water used sparingly in the past?

Ans: Because it was difficult to fetch, people used very little for bathing, cleaning, and household purposes.

3. What is meant by the scientific method?

Ans: The scientific method is a systematic way of solving problems using observation, experiments, and evidence instead of guesses or beliefs.

4. How has the scientific method improved human living conditions?

Ans: It has helped prevent diseases, improve sanitation, provide better food, develop water and sewage systems, enhance communication, transportation, and overall quality of life.

5. In which fields has the scientific method helped human beings the most?

Ans: In health, food production and preservation, housing, sanitation, communication, and transportation.

6. Why are people today less fearful than their ancestors?

Ans: Because science explains phenomena that were once considered mysterious or caused by evil spirits, reducing fear and superstition.

7. How has the scientific method changed human thinking?

Ans: People now rely on facts and evidence instead of old beliefs. They are more critical, open-minded, and willing to question old ideas.

8. What was the condition of infant mortality two hundred years ago?

Ans: About seven out of eight babies died before reaching their first birthday due to diseases and lack of medical care.

9. Name some common diseases children suffered from in the past.

Ans: Smallpox, measles, whooping cough, scarlet fever, and diphtheria were common childhood diseases.

10. Why was life uncertain for people in earlier times?

Ans: Because deadly diseases spread easily, medical knowledge was limited, and sanitation and clean water were poor.

11. How has the scientific method helped in the control of diseases?

Ans: By discovering causes of diseases, developing vaccines, improving hygiene, and promoting preventive healthcare.

12. How many years have been added to the average life expectancy of man?

Ans: Scientific advancements have increased life expectancy by more than thirty years; now a person can live up to almost seventy years on average.

13. What were sanitary conditions like in cities one hundred years ago?

Ans: City streets were narrow, unpaved, and dirty. Garbage was thrown into the streets, animals roamed freely, and outdoor toilets often contaminated drinking water.

14. How did unsanitary conditions cause the spread of diseases?

Ans: Contaminated water, garbage, and poor drainage allowed diseases like cholera, typhoid, and dysentery to spread quickly.

15. What improvements can be seen in modern city sanitation?

Ans: City streets are paved, cleaned regularly, and sewage is carried through sealed pipes to disposal plants. Garbage dumping is prohibited by law.

16. How is garbage disposal managed in cities today?

Ans: City governments collect and dispose of garbage properly, preventing disease and keeping streets clean.

17. How have modern water systems improved city life?

Ans: Piped water supply provides enough clean water for household use, bathing, and sanitation, replacing the old bucket system.

18. How has science helped in providing enough water to large cities?

Ans: By constructing aqueducts and pipelines, water is transported over long distances, ensuring sufficient supply for growing populations.

19. Why could people not enjoy a variety of foods in the past?

Ans: Food was mostly seasonal and locally grown; vegetables and fruits were unavailable in off-seasons, and meat and seafood were limited by region.

20. How were foods preserved before modern scientific methods?

Ans: By drying, salting, pickling, freezing in winter, and canning to prevent spoilage.

21. What is the quick-freeze method of food preservation?

Ans: A modern method where food is frozen quickly to retain nutrition, taste, and freshness for long periods.

22. What is dehydration and how does it help in food preservation?

Ans: Dehydration removes water from food, preventing bacterial growth and spoilage, making it safe and long-lasting.

23. What is meant by superstition?

Ans: Beliefs based on fear or ignorance, such as thinking bad luck comes from black cats, broken mirrors, or the number thirteen.

24. How has the scientific method helped reduce superstitious beliefs?

Ans: It has shown natural reasons for events, proving that superstitions have no scientific basis, reducing fear in people.

25. How has the scientific method developed open-mindedness among people?

Ans: It encourages people to rely on facts, question old ideas, accept new discoveries, and remain open to learning and understanding.

Note:

This chapter is designed to provide a solid foundation of knowledge, with the goal of deepening understanding and encouraging further exploration of the subject. The content has been carefully selected to support effective learning and inspire students to engage with the topic more deeply.

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Purpose: To contribute to education by offering insightful, valuable content that enhances learning and understanding.

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