

CLASS 9

SCIENCE

EXTRA QUESTIONS

Class 9 Science Chapter 13 Earth as a System: Energy, Matter and Life – Extra Questions with Answers

Extra practice questions for Class 9 Science Chapter 13 (Earth as a System: Energy, Matter and Life), beyond the textbook. These Class 9 Science Chapter 13 important questions are handy for last-minute exam practice.

Contents

- Very Short Answer Questions (1 mark)
- Short Answer Questions (2–3 marks)
- Higher-Order Thinking / Application Questions
- Class 9 Science Chapter 13 – Solutions and Notes

Extra practice questions for Class 9 Science Chapter 13 (Earth as a System: Energy, Matter and Life), beyond the textbook. These Class 9 Science Chapter 13 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Name the sphere that includes all living organisms.

Ans: Biosphere.

Q2. Which sphere consists of frozen water?

Ans: Cryosphere.

Q3. What is the primary source of energy driving Earth's weather and climate?

Ans: The Sun (solar radiation).

Q4. Name one human activity that disrupts the carbon cycle.

Ans: Burning fossil fuels (deforestation is also acceptable).

Q5. What causes wind?

Ans: Air moving from high-pressure to low-pressure regions, caused by differential heating.

Short Answer Questions (2–3 marks)

Q6. Describe the water cycle in your own words, naming its key stages.

Ans: The water cycle involves evaporation (water turning to vapour, mainly from oceans), condensation (vapour cooling to form clouds), precipitation (rain, snow falling back to Earth), and collection (water gathering in rivers, lakes, oceans, or groundwater), after which the cycle repeats continuously.

Q7. Explain why differential heating of Earth's surface leads to the formation of winds.

Ans: Differential heating causes some regions of Earth's surface (and the air above them) to become warmer than others. Warm air is less dense and creates lower pressure, while cooler air creates higher pressure; air then flows from high-pressure to low-pressure areas to balance this difference, and this moving air is what we experience as wind.

Q8. How do nitrogen-fixing bacteria contribute to the nitrogen cycle?

Ans: Nitrogen gas (N_2) in the atmosphere cannot be used directly by most living organisms. Nitrogen-fixing bacteria convert this atmospheric nitrogen into forms (like nitrates) that plants can absorb and use, making nitrogen available to enter the food chain and support life.

Higher-Order Thinking / Application Questions

Q9. A region experiences large-scale deforestation over several decades. Predict the likely effects on both the carbon cycle and the water cycle in that region, explaining your reasoning.

Ans: For the carbon cycle: with fewer trees, less CO_2 is absorbed through photosynthesis, so atmospheric CO_2 levels in and around the region would likely rise. For the water cycle: trees release water vapour into the air through transpiration, so fewer trees mean less local evaporation/transpiration, which can reduce local rainfall (precipitation) and disrupt the region's water cycle, potentially leading to drier conditions over time.

Q10. Explain how the five spheres of Earth interact using a specific example, such as a volcanic eruption, tracing its effects across at least three spheres.

Ans: A volcanic eruption originates in the geosphere (solid Earth, releasing rock, ash and gases). The released gases and ash enter the atmosphere, potentially affecting sunlight reaching the surface and altering weather patterns. If the eruption is near an ocean, ash and heat can also affect the hydrosphere (changing water temperature or chemistry). These atmospheric and water changes can in turn affect the biosphere, disrupting plant growth (from reduced sunlight) or marine life, showing how a single event in one sphere ripples outward and affects the others.

Class 9 Science Chapter 13 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 9 Science Chapter 13 Solutions](#) and [Class 9 Science Chapter 13 Revision Notes](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#) | [Chapter 10](#) | [Chapter 11](#) | [Chapter 12](#) | [Chapter 13](#)

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Quick revision: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#) | [Chapter 10](#) | [Chapter 11](#) | [Chapter 12](#)