



## INDIAN SCHOOL AL WADI AL KABIR



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| <b>CLASS: VIII</b>                             | <b>DEPARTMENT: SCIENCE</b><br><b>2025 - 2026</b>  | <b>DATE: 15/02/2026</b>     |
| <b>WORKSHEET NO: 13</b><br><b>WITH ANSWERS</b> | <b>TOPIC:</b><br><b>OUR HOME: EARTH, A</b><br><b>UNIQUE LIFE-</b><br><b>SUSTAINING PLANET</b> | <b>NOTE: A4 FILE FORMAT</b> |
| <b>NAME OF THE STUDENT:</b>                    | <b>CLASS &amp; SEC:</b>   | <b>ROLL NO.</b>             |

### I. OBJECTIVE-TYPE QUESTIONS:

- Countries signed agreements like the Montreal Protocol and the Paris Agreement to reduce harmful gases and limit global warming. What is the main goal of the Paris Agreement?
  - Reduce water pollution
  - Limit global warming to below 1.5 °C
  - Increase the use of fossil fuels
  - Encourage deforestation
- Which set of conditions makes Earth the only known planet capable of supporting life?
  - Presence of gravity only
  - Thick atmosphere of carbon dioxide
  - Air, water, and suitable temperature
  - Large size of the planet
- Why is Venus the hottest planet in the solar system, even though Mercury is closer to the Sun?
  - Venus is larger than Mercury
  - Venus receives more sunlight
  - Venus has a thick atmosphere that traps heat
  - Venus rotates faster
- A group of scientists is comparing three planets orbiting the same star and observing their environmental conditions. Based on their observations, why is Earth considered to lie in the habitable zone?
  - Because it has no water

- (b) Because its distance from the Sun allows liquid water to exist
  - (c) Because it is closer to the Sun than Venus
  - (d) Because Mars has frozen water
5. A farmer notices that a cow gives birth to a calf that looks similar but not exactly like its parents. He learns that reproduction passes genetic instructions but also allows small changes over generations. Which of the following is true about reproduction?
- (a) Asexual reproduction produces offspring identical to the parent
  - (b) Sexual reproduction helps living things have differences and new characteristics
  - (c) Reproduction helps life adapt to the environment
  - (d) All of the above
6. Ruchi noticed that a ginger piece she planted in moist soil grew new roots and shoots after a few days. She also observed her potato sprout new plants from its eyes. How did these plants grow into new individuals?
- (a) Sexual reproduction through seeds
  - (b) Asexual reproduction through vegetative propagation
  - (c) By absorbing nutrients from the soil only
  - (d) By pollination from other plants
7. Birds lay eggs with stored food for the developing embryo, whereas humans develop the baby inside the mother's body. Which advantage do mammals have over birds in providing nutrition to their embryo?
- (a) The embryo can develop inside the mother with continuous nutrition.
  - (b) Embryos get food only once at the beginning.
  - (c) Eggs provide more protection than the mother's body.
  - (d) Embryos develop faster in eggs than in mammals.

*For question numbers 8-10, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below -*

- i) Both A and R are true, and R is the correct explanation of the assertion.*
- ii) Both A and R are true, but R is not the correct explanation of the assertion.*
- iii) A is true, but R is false.*
- iv) A is false, but R is true*

8. **Assertion (A):** Protecting Earth requires efforts only from scientists and governments.  
**Reason (R):** Individual actions like saving energy and reducing waste can help protect the planet.
9. **Assertion (A):** Reproduction is important for the survival of life on Earth.  
**Reason (R):** It ensures continuity of species and allows adaptation over time.
10. **Assertion (A):** The Earth's crust is very thin compared to the size of the planet.  
**Reason (R):** All living organisms on Earth exist only on this thin layer.

## **II. VERY SHORT ANSWER TYPE QUESTIONS (2M):**

1. How does Earth's size affect its ability to support life?  
**[Hint: Earth's size creates the right gravity to hold an atmosphere, which is essential for breathing, temperature regulation, and protection from harmful rays.]**
2. How can human activities threaten life on Earth?  
**[Hint: Activities like burning fossil fuels, deforestation, and pollution cause climate change, biodiversity loss, and degrade air, water, and soil quality.]**
3. What is the "habitable zone" or Goldilocks zone?  
**[Hint: The habitable zone, also called the Goldilocks zone, is the region around a star where conditions are "just right" for life. In this zone, the temperature is neither too hot nor too cold, allowing water to exist as a liquid. Since water is essential for all known forms of life, planets in this zone have the potential to support living organisms.]**
4. Name the gases responsible for the greenhouse effect on Earth.  
**[Hint: The gases responsible for the greenhouse effect are carbon dioxide, methane, and water vapour. These gases trap heat from the Sun in Earth's atmosphere, keeping the planet warm enough to support life. Without them, Earth would be extremely cold, but too much of these gases can cause global warming.]**
5. What is geodiversity, and why is it important?  
**[Hint: Geodiversity refers to the variety of landforms, rocks, soils, and minerals on Earth. It is important because it creates different habitats for plants and animals, supports ecosystems, provides natural resources for humans, and influences natural processes like erosion and soil formation.]**
6. What is the role of ozone in the atmosphere?

[Hint: The ozone layer, located in the stratosphere, protects life on Earth by absorbing harmful ultraviolet (UV) rays from the Sun. These rays can cause skin cancer, eye damage, and harm plants and animals. Without the ozone layer, life on Earth would be exposed to dangerous radiation.]

**III. SHORT ANSWER TYPE QUESTIONS: (3M)**

1. Describe the importance of the greenhouse effect for life on Earth.

[Hint: • Sunlight warms Earth, and greenhouse gases trap some heat, keeping Earth’s temperature stable.

- Without this effect, Earth would be too cold for liquid water and life.
- The greenhouse effect is mild on Earth, unlike Venus, where extreme trapping causes very high temperatures.
- It helps maintain a suitable environment for plants, animals, and humans.]

2. Explain the differences between asexual and sexual reproduction with examples.

| ASEXUAL REPRODUCTION  | SEXUAL REPRODUCTION   |
|---|---|
| 1. Only one parent is needed to produce offspring.  | 1. Two parents are needed, usually a male and a female.                                       |
| 2. The young are exactly like their parents and have the same characteristics.                                | 2. The young are different from their parents and inherit a mix of characteristics from both. |
| 3. There is no genetic variation; all offspring are identical.  | 3. Offspring are genetically varied, leading to diversity.                                    |
| 4. Does not involve gametes (sex cells); happens by methods like budding, fission, or vegetative propagation. | 4. Involves gametes (sperm and egg), and fertilisation is necessary.                          |
| 5. <b>Examples:</b> Bacteria, Hydra, Potato, Ginger.  | 5. <b>Examples:</b> Humans, Birds, Flowering plants.  |

3. Explain the role of gametes in sexual reproduction. [Hint: Gametes are reproductive cells that carry half the genetic material of each parent. During fertilisation, the male and female gametes combine to form a zygote, which has a complete set of genes. This mixing of genes ensures that offspring are genetically unique, allowing variation and adaptation in species.]

4. Describe the importance of reproduction in sustaining life on Earth.

[Hint: • Reproduction ensures the continuity of the species.

- **Asexual reproduction produces identical offspring, allowing rapid population growth.**
- **Sexual reproduction mixes genetic material from two parents, creating variation that helps adaptation to changing environments.**
- **Over time, reproduction allows species to evolve and survive in new conditions.]**

5. What is vegetative propagation?

**[Hint: Vegetative propagation is a form of asexual reproduction in plants where new plants grow from parts of the parent plant, such as stems, roots, or leaves. Examples include the stem cutting of a money plant, the “eyes” of a potato, and pieces of ginger. This method allows plants to reproduce quickly without seeds.]**

#### **IV. LONG ANSWER TYPE QUESTIONS (5M):**

1. How do human actions impact the Earth’s balance and threaten life?

**[Hint: • Climate Change: Burning fossil fuels increases greenhouse gases, raising global temperature.**

- **Pollution: Air, water, and soil pollution harm humans, plants, and animals.**
- **Biodiversity Loss: Deforestation and habitat destruction cause species to disappear, affecting ecosystems.**
- **Global Actions: Agreements like the Montreal Protocol, Kyoto Protocol, and Paris Agreement aim to reduce environmental harm.**

**• Individual Actions: Recycling, saving water and energy, and protecting habitats can help maintain Earth’s balance.]**

2. Explain asexual reproduction in microbes and simple animals with suitable examples.

**[Hint: Asexual reproduction is a type of reproduction in which a single parent produces new individuals without the formation of gametes. The offspring are identical to the parent, and this method is common in microbes and simple animals.**

**Single-celled organisms like bacteria and amoeba reproduce by binary fission, where one cell divides into two identical cells. Some multicellular organisms, such as algae, can reproduce by fragmentation, where a small part grows into a new individual.**

**Hydra reproduces by budding. Small buds grow on its body, detach, and develop into new Hydra. Planaria, a flatworm, also shows regeneration and can form a complete organism from a body fragment.**

**These methods help organisms reproduce quickly and survive easily.**

3. Explain the factors that make Earth suitable for life.

**[Hint: • Position from Sun: Earth is in the habitable zone, allowing water to remain liquid.**

- **Size of Earth: Gravity is sufficient to hold the atmosphere.**
- **Atmosphere: Provides oxygen, carbon dioxide for plants, and protects from harmful rays.**
- **Magnetic field: Shields Earth from cosmic rays and solar wind.**
- **Water, air, sunlight: Support photosynthesis, respiration, temperature regulation, and nutrient transport.**
- **Geosphere: Soil and minerals provide nutrients and materials for life.**

**All these factors together make Earth uniquely suited for life.]**

#### **V. CASE STUDY- BASED QUESTIONS/PASSAGE-BASED QUESTIONS:**

Earth is a unique planet where life thrives due to a delicate balance between living and non-living things. Human actions are disturbing this balance. Burning fossil fuels releases greenhouse gases like carbon dioxide and methane, trapping heat and causing global warming. This can melt ice caps, raise sea levels, and trigger extreme weather.

Habitat destruction and pollution are also major threats. Loss of plants and animals disrupts ecosystems, while air, water, and soil pollution harm humans, crops, and aquatic life.

Global agreements like the Montreal Protocol, Kyoto Protocol, and Paris Agreement aim to reduce these threats. Protecting the climate requires using renewable energy, sustainable farming, and reducing waste. Individuals and communities can help by recycling, saving energy, and spreading awareness.

The Earth's systems—hydrosphere, biosphere, atmosphere, and geosphere—are interconnected, so protecting one helps protect all. Sustaining life requires everyone to act together to preserve this unique planet.

1. What are the main threats to life on Earth mentioned?

**[Hint: The main threats are climate change, biodiversity loss, and pollution.]**

2. How does burning fossil fuels contribute to global warming?

**[Hint: Burning fossil fuels releases greenhouse gases like carbon dioxide and methane, which trap heat in the atmosphere and increase Earth's temperature.]**

3. Why is biodiversity important for ecosystems?

**[Hint: Biodiversity ensures that ecosystems are balanced and strong. Losing species can disrupt food chains and weaken nature's ability to support life.]**

4. Name two ways individuals can help protect the environment.

**[Hint: Individuals can help by reusing, repairing, and recycling items, saving energy and water, and spreading awareness about environmental protection.]**

## **ANSWERS FOR OBJECTIVE TYPE QUESTIONS [1 to 10] –**

- 1 – (b) Limit global warming to below 1.5 °C**
- 2 – (c) Air, water, and suitable temperature**
- 3 – (c) Venus has a thick atmosphere that traps heat**
- 4 – (b) Because its distance from the Sun allows liquid water to exist**
- 5 – (d) All of the above**
- 6 – (b) Asexual reproduction through vegetative propagation**
- 7 – (a) The embryo can develop inside the mother with continuous nutrition.**
- 8 – (iv) A is false, but R is true**
- 9 – (i) Both A and R are true, and R is the correct explanation of the assertion.**
- 10 – (ii) Both A and R are true, but R is not the correct explanation of the assertion.**

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