

Weather, Soil, Water and Our Environment

Science · Class 7 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Study every diagram and table carefully.

Section A — Scientific Reasoning

Q1–Q8 · 1 mark each

- The day-to-day condition of the atmosphere at a place is called its _____.
 (A) Climate (B) Season
 (C) Weather (D) Habitat
- The instrument used to measure rainfall is a _____.
 (A) Barometer (B) Hygrometer
 (C) Anemometer (D) Rain gauge
- The uppermost layer of soil, which is dark and rich in humus, is called the _____.
 (A) Topsoil (B) Subsoil
 (C) Bedrock (D) Parent rock
- Which type of soil holds the **most** water?
 (A) Sandy soil (B) Loamy soil
 (C) Clayey soil (D) Gravel
- Which soil is considered best for growing most crops?
 (A) Sandy (B) Clayey
 (C) Rocky (D) Loamy
- Winds always blow from a region of _____ pressure to a region of _____ pressure.
 (A) High, low (B) Low, high
 (C) High, high (D) Low, low
- The layer of underground water below which the rock is saturated is called the _____.
 (A) Bedrock (B) Aquifer
 (C) Water table (D) Catchment
- Which of these is the best way to conserve water in farming?
 (A) Flood irrigation (B) Watering fields at midday
 (C) Leaving canals uncovered (D) Drip irrigation

9. In the table below, which row is **incorrectly** matched?

Row	Instrument	What it measures
(A)	Thermometer	Temperature
(B)	Anemometer	Rainfall
(C)	Barometer	Atmospheric pressure
(D)	Hygrometer	Humidity

Table 9.1 — Weather instruments

- (A) Row (A) (B) Row (B)
(C) Row (C) (D) Row (D)
10. Why does the maximum temperature of the day usually occur in the **afternoon** rather than at noon, when the sun is highest?
- (A) The ground keeps absorbing more heat than it loses for some hours after noon (B) The sun is closer in the afternoon
(C) The air becomes thinner (D) Clouds form at noon
11. A cyclone forms over warm seas. Which condition is **essential** for its formation?
- (A) Very cold sea water (B) Warm moist air rising rapidly, creating a region of low pressure
(C) Dry desert air (D) Complete absence of wind
12. Why is soil erosion much worse on land where trees have been cut down?
- (A) Bare soil is heavier (B) Bare soil absorbs more water
(C) Roots no longer bind the soil and leaves no longer break the force of falling rain (D) Trees make the soil acidic
13. A student pours equal amounts of water into equal volumes of sandy soil and clayey soil. From which will water percolate **faster**, and why?
- (A) Sandy soil, because it has larger particles with bigger spaces between them (B) Clayey soil, because it holds water
(C) Both at the same rate (D) Neither will let water through
14. Which of these practices most directly causes the **water table** to fall?
- (A) Rainwater harvesting (B) Planting trees
(C) Building check dams (D) Pumping groundwater faster than rain can recharge it
15. Why do people in coastal areas often feel a cool breeze from the sea during the day?
- (A) Land heats faster than the sea, so warm air rises over the land and cooler sea air flows in (B) The sea is always cold
(C) The sea gives out cold air (D) Winds always blow towards the shore

16. Consider the following statements.

- (i) Weather and climate mean the same thing.
- (ii) Humus makes soil fertile.
- (iii) Only a small fraction of the earth's water is fresh water available for use.

Which of the statements is/are correct?

- (A) (i) and (ii) only
- (B) (ii) and (iii) only
- (C) (i) and (iii) only
- (D) All three

17. A farmer's field has soil that becomes waterlogged after rain and cracks when dry. Which soil is it most likely to be, and what should he add to improve it?

- (A) Sandy soil; add more sand
- (B) Clayey soil; add organic manure and compost to improve drainage and structure
- (C) Loamy soil; add clay
- (D) Rocky soil; add water

18. Two identical trays of soil are tilted at the same angle. Tray X is bare and tray Y is covered with grass. Equal amounts of water are poured over each and the run-off collected. What result would you expect, and what does it show?

- (A) Both give clear run-off; plant cover makes no difference
- (B) X gives muddy run-off and Y gives clearer run-off, showing that plant cover reduces soil erosion
- (C) Y gives muddier run-off, showing that grass loosens soil
- (D) Neither gives any run-off

Answer Key

1	C	2	D	3	A	4	C	5	D
6	A	7	C	8	D	9	B	10	A
11	B	12	C	13	A	14	D	15	A
16	B	17	B	18	B				

Solutions

1. **Answer: (C)** Weather

Weather is the day-to-day state of the atmosphere and can change within hours. Climate is the average weather pattern of a place taken over many years.

2. **Answer: (D)** Rain gauge

A **rain gauge** collects rainfall in a measuring cylinder and records its depth in millimetres.

3. **Answer: (A)** Topsoil

The **topsoil** is the top layer, made dark and fertile by humus — the decayed remains of plants and animals. Most roots grow in it.

4. **Answer: (C)** Clayey soil

Clayey soil has very fine particles packed closely together, so water drains through slowly and much of it is retained. Sandy soil has large particles and drains quickly.

5. **Answer: (D)** Loamy

Loamy soil is a balanced mixture of sand, clay and silt with plenty of humus. It holds enough water for the plant but still drains and lets air reach the roots.

6. **Answer: (A)** High, low

Air moves from **high** pressure to **low** pressure. Warm air rises and leaves a low-pressure region, and cooler air flows in to fill it.

7. **Answer: (C)** Water table

The **water table** is the upper level of the water-saturated zone underground. It rises after rain and falls when water is pumped out faster than it is replaced.

8. **Answer: (D)** Drip irrigation

Drip irrigation delivers water drop by drop directly to the roots through narrow pipes, so almost none is lost to evaporation or run-off. Flood irrigation wastes a great deal.

9. **Answer: (B)** Row (B)

An anemometer measures **wind speed**, not rainfall — rainfall is measured by a rain gauge. The other three rows are correct.

10. **Answer: (A)** The ground keeps absorbing more heat than it loses for some hours after noon

The sun is strongest at noon, but the ground goes on **gaining heat faster than it loses it for a couple of hours afterwards**. Only when the two rates balance does the temperature peak, which is why the hottest time is mid-afternoon.

11. **Answer: (B)** Warm moist air rising rapidly, creating a region of low pressure

A cyclone begins when **warm moist air over the sea rises rapidly, leaving a region of low pressure**. Air spirals in to fill it, the vapour condenses and releases more heat, and the whole system strengthens.

12. **Answer: (C)** Roots no longer bind the soil and leaves no longer break the force of falling rain

Tree roots hold the soil particles together and the leaf canopy softens the impact of raindrops. Once the trees are gone, **neither protection remains**, so wind and running water strip the fertile topsoil away.

13. **Answer: (A)** Sandy soil, because it has larger particles with bigger spaces between them

The rate of percolation depends on the size of the spaces between the particles. **Sandy soil has large particles with bigger gaps**, so water runs through quickly. Clay particles are fine and tightly packed, so percolation is slow.

14. **Answer: (D)** Pumping groundwater faster than rain can recharge it

Groundwater is refilled slowly as rain soaks down. **Pumping it out faster than it is recharged** steadily lowers the water table, and concrete surfaces make the problem worse by stopping rain from soaking in. The other three practices all help raise it.

- 15. Answer: (A)** Land heats faster than the sea, so warm air rises over the land and cooler sea air flows in **Land heats up much faster than water.** The warm air above the land rises, lowering the pressure there, and cooler air from over the sea flows in — the sea breeze. At night the land cools faster and the flow reverses.
- 16. Answer: (B)** (ii) and (iii) only
Statement (i) is false — weather changes from day to day, while climate is the average pattern over many years. Statement (ii) is true; humus supplies nutrients and helps the soil hold water. Statement (iii) is true; about 97% of the earth's water is salty and most of the rest is frozen. Hence **(ii) and (iii).**
- 17. Answer: (B)** Clayey soil; add organic manure and compost to improve drainage and structure
Waterlogging after rain and deep cracks on drying are the classic signs of **clayey soil**, whose fine particles pack tightly. Adding **organic manure and compost** opens up the structure, letting excess water drain and air reach the roots, while also enriching the soil.
- 18. Answer: (B)** X gives muddy run-off and Y gives clearer run-off, showing that plant cover reduces soil erosion
Muddy water means soil is being carried away. **Tray X, being bare, gives muddy run-off while the grass-covered tray Y gives much clearer run-off.** Since the grass cover is the only difference between the two trays, it must be the cause — showing that plant cover reduces soil erosion. This is why hillsides are kept under vegetation and fields are terraced.