

Plants — Structure and Function

Science · Class 6 · 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 arrangement of veins in a leaf blade is called _____.
 (A) Venation (B) Transpiration
 (C) Germination (D) Pollination
- Plants with parallel venation usually have a _____ root system.
 (A) Fibrous (B) Tap
 (C) Prop (D) Storage
- The loss of water as vapour from the surface of a leaf is called _____.
 (A) Respiration (B) Photosynthesis
 (C) Transpiration (D) Condensation
- Which part of the stamen produces pollen?
 (A) Filament (B) Style
 (C) Stigma (D) Anther
- The female reproductive part of a flower is the _____.
 (A) Pistil (B) Stamen
 (C) Petal (D) Sepal
- Which tissue carries water and minerals from the roots to the leaves?
 (A) Phloem (B) Xylem
 (C) Stomata (D) Cambium
- A plant with a weak stem that spreads along the ground is called a _____.
 (A) Climber (B) Shrub
 (C) Creeper (D) Tree
- Green plants are called **autotrophs** because they _____.
 (A) Eat other organisms (B) Have green leaves
 (C) Live in soil (D) Make their own food

9. The figure shows the vertical section of a flower. Which labelled part will develop into the **fruit**?

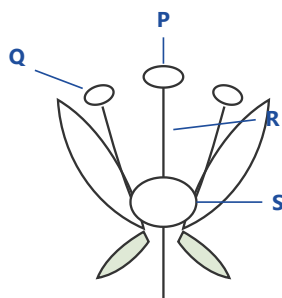


Fig. 9.1 — Vertical section of a flower

- (A) P (B) Q
(C) R (D) S

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

Row	Plant part	Function
(A)	Root	Absorbs water and minerals
(B)	Xylem	Carries food to all parts
(C)	Leaf	Makes food by photosynthesis
(D)	Ovary	Develops into fruit

Table 10.1

- (A) Row (A)
- (B) Row (B)
- (C) Row (C)
- (D) Row (D)

11. A potted plant is watered with red-coloured water. After a few hours the stem is cut across. Which part will appear red?

- (A) The whole cut surface
(B) Only the xylem tubes
(C) Only the phloem tubes
(D) Nothing will appear red

12. A polythene bag is tied over the leafy shoot of a well-watered potted plant and left in sunlight. After a few hours, droplets of water collect inside the bag. What does this show?

- (A) The plant is losing water vapour by transpiration
(B) Photosynthesis is taking place
(C) The plant is respiring
(D) The bag is leaking

13. Which of these adaptations helps a desert plant to reduce water loss?

- (A) Broad flat leaves
(B) Leaves reduced to spines and a thick waxy stem
(C) Shallow spreading leaves
(D) Hollow floating stems

14. Which of these plants has a **tap** root system?

- (A) Wheat (B) Maize
(C) Mustard (D) Grass

15. Why do most leaves have their stomata on the **lower** surface?

- (A) To catch more sunlight
(B) To make the leaf heavier
(C) To let insects in
(D) To reduce water loss, since the lower surface is cooler and shaded

16. Consider the following statements.

- (i) Photosynthesis releases oxygen and uses carbon dioxide.
- (ii) Plants respire only at night.
- (iii) Transpiration helps to pull water up the stem.

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 leafy shoot is kept in a test tube of water with a layer of oil on the surface, and the whole set-up is weighed each day. The mass steadily falls. What does the layer of oil ensure?

- (A) That water is lost only through the shoot and not by evaporation from the tube
- (B) That the shoot cannot photosynthesise
- (C) That the water stays warm
- (D) That the shoot cannot respire

18. Match each part in Column I with its correct description in Column II.

Column I	Column II
(P) Stigma	(1) Protects the flower when it is a bud
(Q) Sepal	(2) Receives the pollen grains
(R) Stomata	(3) Tiny pores for the exchange of gases
(S) Phloem	(4) Carries food made in the leaves

Table 18.1

- (A) P-1, Q-2, R-4, S-3
- (B) P-2, Q-1, R-3, S-4
- (C) P-2, Q-3, R-1, S-4
- (D) P-3, Q-1, R-2, S-4

Answer Key

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

Solutions

1. Answer: (A) Venation

Venation is the pattern of veins in a leaf. It is reticulate (net-like) in most broad-leaved plants and parallel in grasses and maize.

2. Answer: (A) Fibrous

Parallel venation goes with a **fibrous** root system — as in grass, wheat and maize. Reticulate venation goes with a tap root.

3. Answer: (C) Transpiration

Transpiration is the escape of water vapour, mainly through the stomata. It helps pull water up from the roots and cools the plant.

4. Answer: (D) Anther

The **anther** is the swollen head of the stamen, and pollen grains are made inside it. The filament is only the stalk that holds it up.

5. Answer: (A) Pistil

The **pistil** (or carpel) is the female part. It has three regions — the stigma at the top, the style below it and the ovary at the base.

6. Answer: (B) Xylem

Xylem carries water and dissolved minerals upward from the roots. Phloem carries the food made in the leaves to the rest of the plant.

7. Answer: (C) Creeper

A **creeper** has a weak stem that cannot stand upright, so it spreads along the ground — as in pumpkin and watermelon. A climber has a weak stem too but uses a support to grow upward.

8. Answer: (D) Make their own food

'Auto' means self and 'troph' means nourishment, so an autotroph **makes its own food**. Green plants do this by photosynthesis. Animals, which must eat other organisms, are heterotrophs.

9. Answer: (D) S

S labels the ovary at the base of the pistil. After fertilisation the ovary swells and ripens into the fruit, while the ovules inside it become the seeds. P is the stigma, Q is an anther and R is the style.

10. Answer: (B) Row (B)

Xylem carries **water and minerals upward**; it is the **phloem** that carries food to all parts of the plant. The other three rows are correct.

11. Answer: (B) Only the xylem tubes

Water and anything dissolved in it travel upward through the **xylem**, so only the xylem tubes take up the dye and show as red dots or a red ring in the cut stem. This is the standard experiment for showing the path of water.

12. Answer: (A) The plant is losing water vapour by transpiration

The water vapour escaping from the leaves condenses on the cool inner surface of the bag. This shows that **the plant is losing water vapour by transpiration**. A control bag tied over bare soil collects far less water.

13. Answer: (B) Leaves reduced to spines and a thick waxy stem

Water escapes from leaf surfaces, so a small surface loses less. **Leaves reduced to spines and a thick waxy stem** cut transpiration right down, while the green stem takes over food-making.

14. Answer: (C) Mustard

Mustard is a dicot with reticulate venation and a tap root — one thick main root with thinner side roots. Wheat, maize and grass are monocots with fibrous roots.

15. Answer: (D) To reduce water loss, since the lower surface is cooler and shaded

The upper surface faces direct sunlight and is much warmer. Placing the pores on the shaded, cooler underside **reduces water loss** while still allowing carbon dioxide in and oxygen out.

16. Answer: (C) (i) and (iii) only

Statement (i) is true. Statement (ii) is false — plants respire day and night; it only *seems* otherwise because during the day photosynthesis releases far more oxygen than respiration uses. Statement (iii) is true; the loss of vapour at the top creates a pull that draws water up. Hence **(i) and (iii)**.

17. Answer: (A) That water is lost only through the shoot and not by evaporation from the tube

Without the oil, water would evaporate straight from the open surface of the tube and the experiment would prove nothing. The oil seals that surface, so **any loss of mass must be water taken up and transpired by the shoot itself**. This is how a control is built into the experiment.

18. Answer: (B) P-2, Q-1, R-3, S-4

The stigma is the sticky tip of the pistil that **receives the pollen grains** (2). Sepals are the green outer parts that **protect the bud** (1). Stomata are **tiny pores for gas exchange** (3). Phloem **carries the food made in the leaves** (4). Hence P-2, Q-1, R-3, S-4.