

FREE PRACTICE PACK · EDITION 1

Class 10 Science Olympiad practice

16 original questions + explained answers

For students preparing for SOF ISO.

Inside this pack

Eight topic-practice questions and an eight-question, 25-minute mini-mock.

Topics selected for practice

- Chemical reactions and materials
- Life processes and heredity
- Light and electricity
- Magnetism and environment

How to use it

Try the practice first. Complete the mini-mock in one sitting. Check the explanations, mark mistakes, and retry them the next day.

This pack covers selected topics. It is original BodhiScore material, independent of SOF, and is not an official paper or a full-length exam. Check the official syllabus for the complete scope.

Topic practice

Work through these eight questions without a timer. Explain your choice before checking the solutions.

1. Chemical reactions and materials

A solution has pH 2. Which description fits it?

- | | |
|----------------------|---------------------------|
| A. Neutral | B. Basic |
| C. Pure metal | D. Strongly acidic |
-

2. Life processes and heredity

In pea plants, tallness T is dominant to shortness t. What phenotype does Tt have?

- | | |
|-------------------|------------------------|
| A. Neither | B. Tall |
| C. Short | D. Both equally |
-

3. Light and electricity

A 12 V battery is connected across a 4 ohm resistor. What current flows?

- | | |
|-----------------|----------------|
| A. 8 A | B. 48 A |
| C. 0.3 A | D. 3 A |
-

Topic practice (continued)

4. Magnetism and environment

A current-carrying wire is placed near a compass. Why can the needle deflect?

- A.** The compass detects heat only
 - B.** The wire absorbs light
 - C.** Electric current produces a magnetic field
 - D.** The wire makes gravity stop
-

5. Chemical reactions and materials

Which gas is released when an acid reacts with a carbonate?

- A.** Hydrogen
 - B.** Nitrogen
 - C.** Carbon dioxide
 - D.** Oxygen
-

6. Life processes and heredity

Which molecule carries inherited genetic information in most organisms?

- A.** DNA
 - B.** Starch
 - C.** Water
 - D.** Chlorophyll
-

Topic practice (continued)

7. Light and electricity

An object is 30 cm from a convex lens of focal length 15 cm. Where is its image?

- | | |
|-----------------------|-----------------|
| A. 30 cm | B. 45 cm |
| C. At infinity | D. 15 cm |
-

8. Magnetism and environment

Which energy source is renewable?

- | | |
|-----------------------|------------------------|
| A. Natural gas | B. Solar energy |
| C. Coal | D. Petroleum |
-

Timed mini-mock

Set a 25-minute timer for these eight questions. Score 1 point per correct answer; there is no penalty for an incorrect answer. This is BodhiScore's practice scoring.

9. Chemical reactions and materials

Why is sodium stored under oil?

- A.** It dissolves only in oil
 - B.** It is radioactive
 - C.** It becomes a gas in darkness
 - D.** It reacts rapidly with air and water
-

10. Life processes and heredity

Which blood vessel carries blood away from the heart?

- A.** Lymph duct
 - B.** Artery
 - C.** Vein
 - D.** Capillary only
-

11. Light and electricity

Two 6 ohm resistors in parallel have equivalent resistance of what?

- A.** 6 ohm
 - B.** 12 ohm
 - C.** 36 ohm
 - D.** 3 ohm
-

Timed mini-mock (continued)

12. Magnetism and environment

Why can excessive fertiliser runoff harm a lake?

- A. It removes all sunlight from Earth
 - B. It stops evaporation everywhere
 - C. It can trigger algal growth and reduce dissolved oxygen
 - D. It makes water magnetic
-

13. Chemical reactions and materials

A metal displaces copper from copper sulfate solution. What does this show about the metal?

- | | |
|------------------------------------|------------------------------------|
| A. It cannot form ions | B. It is more reactive than copper |
| C. It is less reactive than copper | D. It is a non-metal |
-

14. Life processes and heredity

If a parent genotype is Aa, what fraction of its gametes carry allele a?

- | | |
|--------|--------|
| A. 0 | B. 1/4 |
| C. 1/2 | D. 1 |
-

Timed mini-mock (continued)

15. Light and electricity

An electric appliance uses 2 A at 220 V. What is its power?

A. 440 W

B. 880 W

C. 110 W

D. 220 W

16. Magnetism and environment

Which change usually increases the strength of an electromagnet?

A. Increase the current through its coil

B. Remove the iron core

C. Reduce coil turns to zero

D. Disconnect the battery

Answers and explanations

Check why the answer works, then retry any question you missed.

1. D - Strongly acidic

A pH far below 7 indicates an acidic solution.

2. B - Tall

One dominant T allele is enough for the tall phenotype.

3. D - 3 A

Ohm's law gives $I = V/R = 12/4 = 3 \text{ A}$.

4. C - Electric current produces a magnetic field

An electric current creates a magnetic field around the wire.

5. C - Carbon dioxide

Acid-carbonate reactions produce salt, water and carbon dioxide.

6. A - DNA

DNA stores the genetic instructions passed from parents to offspring.

7. A - 30 cm

At twice the focal length, a convex lens forms the image at $2f$, also 30 cm away.

8. B - Solar energy

Sunlight is naturally replenished and is a renewable energy source.

9. D - It reacts rapidly with air and water

Oil keeps reactive sodium away from oxygen and moisture.

Answers and explanations (continued)

10. B - Artery

Arteries carry blood away from the heart.

11. D - 3 ohm

For equal resistors in parallel, equivalent resistance is half: 3 ohm.

12. C - It can trigger algal growth and reduce dissolved oxygen

Nutrient runoff can cause algal blooms whose decay depletes oxygen.

13. B - It is more reactive than copper

A more reactive metal can displace a less reactive metal from its salt.

14. C - 1/2

The two alleles separate during gamete formation, so half carry a.

15. A - 440 W

Power = $VI = 220 \times 2 = 440$ W.

16. A - Increase the current through its coil

A larger current generally strengthens the magnetic field of the coil.

Topic scope checked against SOF syllabus: [SOF ISO Class 10 syllabus](#)