

FREE PRACTICE PACK · EDITION 1

Class 8 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, 20-minute mini-mock.

Topics selected for practice

- Cells, health and ecosystems
- Matter and chemical reactions
- Forces, electricity and optics
- Weather and space

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. Cells, health and ecosystems

Which cell structure controls most activities and contains genetic material?

- A.** Nucleus
 - B.** Cell wall
 - C.** Vacuole
 - D.** Cytoplasm
-

2. Matter and chemical reactions

In a closed container, a reaction makes a gas but nothing escapes. What happens to total mass?

- A.** It always decreases
 - B.** It remains the same
 - C.** It doubles
 - D.** It becomes zero
-

3. Forces, electricity and optics

A 5 ohm resistor carries 2 A. What is the voltage across it?

- A.** 7 V
 - B.** 10 V
 - C.** 25 V
 - D.** 2.5 V
-

Topic practice (continued)

4. Weather and space

Warm air rises because it is usually what compared with cooler surrounding air?

- A.** More dense
 - B.** A solid
 - C.** Magnetic
 - D.** Less dense
-

5. Cells, health and ecosystems

In a food web, a pesticide builds up in insects and then in insect-eating birds. Which birds may be most affected?

- A.** All plants
 - B.** Only decomposers
 - C.** Those eating many contaminated insects
 - D.** Those eating no insects
-

6. Matter and chemical reactions

Which is a chemical change?

- A.** Iron rusting
 - B.** Ice melting
 - C.** Glass breaking
 - D.** Sugar dissolving
-

Topic practice (continued)

7. Forces, electricity and optics

A convex lens brings parallel rays together at a point. What is this point called?

- A.** Image barrier
 - B.** Principal focus
 - C.** Centre of mass
 - D.** North pole
-

8. Weather and space

Why does a coastal area often have milder temperatures than an inland area?

- A.** Sea water has no heat
 - B.** Land never absorbs sunlight
 - C.** Waves block all wind
 - D.** Water heats and cools more slowly than land
-

Timed mini-mock

Set a 20-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. Cells, health and ecosystems

Red blood cells carry oxygen. Which protein helps bind oxygen?

- | | |
|-----------------------|-----------------------|
| A. Keratin | B. Chlorophyll |
| C. Haemoglobin | D. Insulin |
-

10. Matter and chemical reactions

A solution has pH 3. How is it classified?

- | | |
|------------------|--------------------|
| A. Basic | B. Metallic |
| C. Acidic | D. Neutral |
-

11. Forces, electricity and optics

Two 6 ohm resistors are connected in series. What is their equivalent resistance?

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

Timed mini-mock (continued)

12. Weather and space

A weather report says relative humidity is very high. What is more likely?

- A.** The air has no water vapour
 - B.** The temperature is exactly zero
 - C.** Winds have stopped
 - D.** Air is near its water-vapour capacity
-

13. Cells, health and ecosystems

A student observes onion cells under a microscope. Why are cell walls visible around plant cells?

- A.** Animal cells make glass
 - B.** The microscope paints the edges
 - C.** Cell walls are only in blood
 - D.** Plant cells have a supporting cellulose wall
-

14. Matter and chemical reactions

A reaction makes the surroundings warmer without external heating. What does this suggest?

- A.** The reaction released heat
 - B.** The reaction absorbed all heat
 - C.** No energy changed
 - D.** Matter disappeared
-

Timed mini-mock (continued)

15. Forces, electricity and optics

A 3 kg object accelerates at 4 m/s^2 . What net force acts on it?

- | | |
|------------------|----------------|
| A. 12 N | B. 24 N |
| C. 0.75 N | D. 7 N |
-

16. Weather and space

A lunar eclipse is visible at night when the Moon passes into Earth's shadow. What must be the alignment?

- | | |
|----------------------------|----------------------------|
| A. Earth, Sun, Moon | B. Moon, Earth, Sun |
| C. Sun, Earth, Moon | D. Sun, Moon, Earth |
-

Answers and explanations

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

1. A - Nucleus

The nucleus contains DNA and helps control cell activities.

2. B - It remains the same

Mass is conserved in a closed system during a chemical reaction.

3. B - 10 V

Ohm's law gives $V = IR = 2 \times 5 = 10 \text{ V}$.

4. D - Less dense

Heating expands air and lowers its density, so it tends to rise.

5. C - Those eating many contaminated insects

Contaminants can accumulate through food chains in predators that eat many prey.

6. A - Iron rusting

Rusting produces iron oxide, a new substance.

7. B - Principal focus

Parallel rays converge at the principal focus of a convex lens.

8. D - Water heats and cools more slowly than land

Water's high heat capacity moderates nearby air temperatures.

Answers and explanations (continued)

9. C - Haemoglobin

Haemoglobin in red blood cells binds and transports oxygen.

10. C - Acidic

A pH below 7 indicates an acidic solution.

11. B - 12 ohm

Series resistances add: $6 + 6 = 12$ ohm.

12. D - Air is near its water-vapour capacity

High relative humidity means air contains a large fraction of the moisture it can hold at that temperature.

13. D - Plant cells have a supporting cellulose wall

Plant cells have a rigid cellulose wall outside the cell membrane.

14. A - The reaction released heat

A rise in surroundings' temperature indicates energy was released as heat.

15. A - 12 N

$F = ma = 3 \times 4 = 12$ N.

16. C - Sun, Earth, Moon

Earth lies between the Sun and Moon and blocks sunlight from the Moon.

Topic scope checked against SOF syllabus: [SOF ISO Class 8 syllabus](#)