Step-by-Step Solutions & Marking Scheme

CBSE Class 8 Science (Curiosity) — Chapter 3: Health: The Ultimate Treasure

Quick answer key — Section A: 1-(b) 2-(c) 3-(b) 4-(b) 5-(b) 6-(b) 7-(A) 8-(D)

SECTION A — Multiple Choice Questions

1. WHO definition → **(b)**

Health is a "state of complete physical, mental and social well-being, and not merely the absence of disease". Options (a), (c) and (d) describe only the body or only the absence of illness.

Marking: 1 mark.

2. Fig. 1 → **(c) R only**

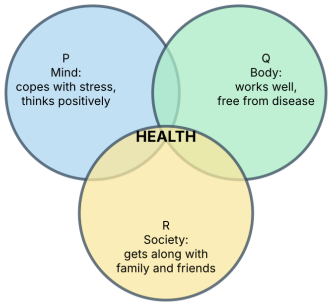


Fig. 1: Aspects of health

Step 1: Read the aspects in Fig. 1: P = mind (coping, positive thinking), Q = body (working well, no disease), R = society (getting along with family and friends).

Step 2: Aarav is cheerful and copes with stress (P is fine) and eats well and is never ill (Q is fine).

Step 3: He has no friends and avoids classmates, so only R, the social aspect, needs attention → (c).

Marking: 1 mark.

3. Fig. 2 → **(b) Rain leaves stagnant water in which mosquitoes breed.**

Step 1: From the graph, cases are low (5–12) in January–April and shoot up from 40 in June to 72 in July, staying high till September.

Step 2: Dengue is a vector-borne disease; mosquitoes breed in still water, which collects during the rainy season (monsoon). Hence more mosquitoes, more cases.

Step 3: Dengue is caused by a virus spread by mosquitoes, not through the air, and there is no connection with eating fruit → (b) is the only suitable reason.

Marking: 1 mark.

4. (b) Diabetes and goitre

Typhoid, measles and cholera are communicable (caused by pathogens). Asthma, diabetes, cancer and deficiency diseases such as goitre and anaemia are non-communicable.

Check each option: (a) typhoid is communicable; (c) measles is communicable; (d) cholera is communicable. Only (b) has both non-communicable.

Marking: 1 mark.

5. (b) Cholera

Antibiotics kill bacteria and work only against bacterial infections.

Cold (virus), dengue (virus) and malaria (protozoa) do not respond to antibiotics. Cholera is caused by bacteria → (b).

Marking: 1 mark.

6. (b) Tuberculosis – bacteria

Malaria is caused by protozoa, chickenpox by a virus, cholera by bacteria, and tuberculosis by bacteria. Only (b) is correct.

Marking: 1 mark.

7. Assertion–Reason → **(A)**

Step 1: Assertion: antibiotics should not be taken for cold or flu — true.

Step 2: Reason: antibiotics work only against bacteria, not viruses — true.

Step 3: Because flu is viral, an antibiotic cannot help; so R explains A → (A).

Marking: 1 mark.

8. Assertion–Reason → **(D) A is false but R is true.**

Step 1: Assertion: vaccines are preventive, not curative; they do not treat a person who is already sick — so A is false.

Step 2: Reason: a vaccine trains the immune system to recognise and attack harmful germs — true.

Step 3: A false, R true → (D).

Marking: 1 mark.

SECTION B — Short Answer Questions

9. Ways of spreading diseases (Fig. 3)

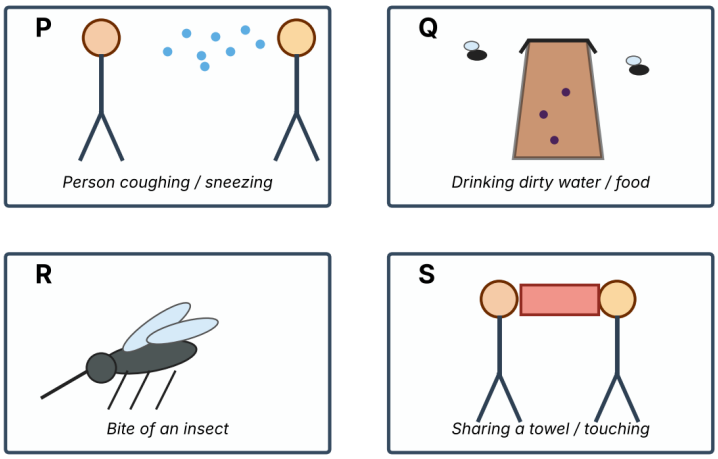


Fig. 3: Some ways in which diseases spread

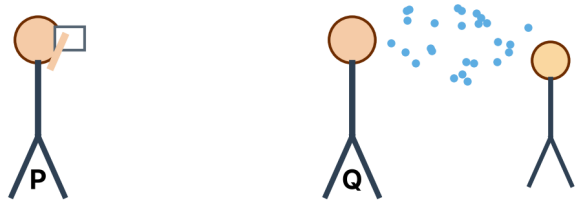
(a) Route Q (dirty water/food): any one of cholera, typhoid, hepatitis A, ascariasis. Route R (insect bite): any one of malaria, dengue.

(b) Insects that carry pathogens from one person to another are called **vectors** (e.g. mosquitoes).

Marking: (a) ½ + ½; (b) 1.

10. Sneezing (Fig. 4)

Fig. 4: Two children sneezing



(a) Child **P** is following the correct practice because P covers the mouth and nose while sneezing, so the droplets carrying pathogens do not spread to others. In Q, droplets travel through the air to the people nearby.

(b) Any two: wash hands often with soap and water; wear a mask in crowded places; avoid sharing personal items like towels and handkerchiefs; stay at home and rest when unwell; isolate the patient (as in chickenpox/measles).

Marking: (a) ½ + ½; (b) ½ + ½.

11. Symptom vs sign

Symptom: what the patient *feels*, e.g. pain, tiredness, dizziness.

Sign: something that can be *seen or measured*, e.g. fever (high body temperature), rash, high blood pressure, swelling.

Marking: 1 mark for each correct difference with example.

SECTION C — Long Answer Questions

12. Immune response (Fig. 5)

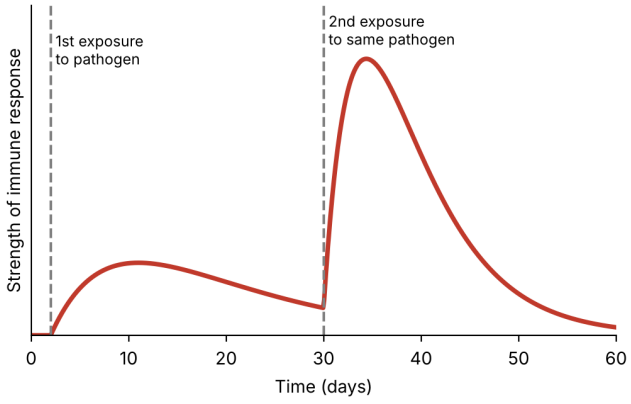


Fig. 5: Response of the body to a pathogen

(i) The **first exposure** (day 2): the curve rises only slightly and slowly.

(ii) The immune system has met this pathogen before and “remembers” it, so it recognises it quickly and responds faster and more strongly the second time.

(iii) A vaccine contains dead, weakened or harmless parts of a germ. It gives the immune system a safe “first exposure”, so the body can respond quickly if the real germ enters later (acquired immunity).

(iv) Vaccines train the body before infection to prevent serious disease; they do not treat a person who is already ill.

Marking: 1 mark for each part.

13. Playgrounds (Fig. 6)

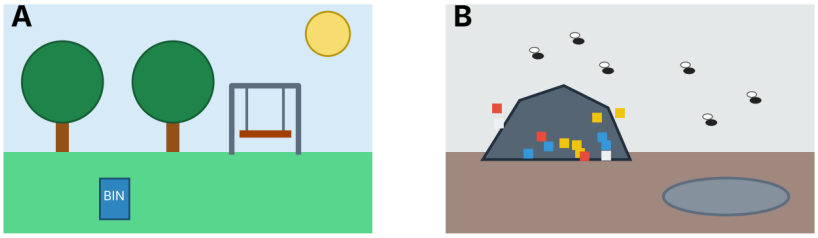


Fig. 6: Two playgrounds, A and B

(i) Playground A, because it is clean and well maintained, with trees and a dustbin.

(ii) Any two: heap of garbage; stagnant water; flies and mosquitoes; dirty, unhygienic ground.

(iii) Diseases carried by mosquitoes (malaria, dengue) as mosquitoes breed in the stagnant water; diseases through contaminated food or water (cholera, typhoid) because flies spread pathogens from the garbage.

(iv) Any two: dispose of garbage properly; drain or cover stagnant water; keep the place clean regularly; avoid still water; spray/cover to control mosquito breeding.

Marking: 1 mark for each part (½ + ½ where two items are asked).

14. Communicable vs non-communicable diseases

(a) Any three (1 mark each):

- **Cause:** communicable diseases are caused by pathogens (bacteria, viruses, fungi, worms, protozoa); non-communicable diseases are not caused by pathogens but are linked to lifestyle, diet and/or environment.
- **Spread:** communicable diseases spread from one person to another; non-communicable diseases do not.
- **Duration/nature:** non-communicable diseases such as diabetes and asthma are often chronic (last more than three months); communicable diseases may be short-lived.
- **Prevention:** communicable diseases by hygiene, clean water, vaccination; non-communicable diseases by healthy diet, exercise and lifestyle changes.

(b) Communicable: typhoid, dengue, flu, chickenpox, TB (any one). Non-communicable: diabetes, cancer, asthma, obesity (any one).

Marking: (a) 3 × 1; (b) ½ + ½.

15. Ravi's lifestyle

(i) Any two: too much screen time; eating fast food daily; sleeping very late; skipping breakfast.

(ii) Obesity, diabetes, high blood pressure (any one).

(iii) Mental (or social) health: too much screen time can cause anxiety, sleep problems and loneliness (as in the story of the boy in the textbook).

(iv) Any two: limit screen time; eat a balanced diet with fruits and vegetables; exercise or play outdoors; sleep on time; do not skip breakfast; practise yoga.

Marking: 1 mark for each part (½ + ½ where two items are asked).

SECTION D — Case-Based / Practical Questions

16. Smallpox and vaccination (Fig. 7)

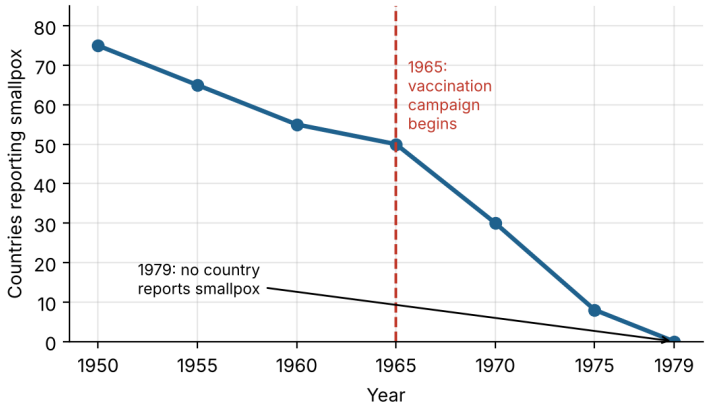


Fig. 7: Countries reporting smallpox (illustrative values)

(i) The number of countries reporting smallpox fell steadily (from 50 in 1965 to 0 in 1979), i.e. the disease was eradicated.

(ii) People who had cowpox (such as milkmaids) did not get smallpox.

(iii) It led to the invention of the first vaccine and helped protect people from smallpox; mass vaccination eventually eradicated the disease.

(iv) Variolation, performed by people called **teekedaars**.

(v) A vaccine is preventive: it trains the immune system in advance so the body can fight the germ; it cannot cure someone who is already sick.

Marking: 1 mark for each part.

17. Penicillin and antibiotic resistance

(i) The mould released a substance that killed (stopped the growth of) the bacteria.

(ii) Antibiotics work only against bacteria, because they target parts of bacterial cells that are different from human cells; they do not work against viruses.

(iii) Antibiotic resistance is the phenomenon in which bacteria that were earlier killed by an antibiotic survive and multiply despite treatment with it.

(iv) Taking tablets without need and stopping early (incomplete dose) kills only some bacteria; the surviving ones become resistant and multiply, so the antibiotic becomes less effective.

(v) Any two: take antibiotics only when prescribed by a doctor; take the correct dose; complete the course for the right duration; avoid unnecessary use.

Marking: 1 mark for each part.

Section	A	B	C	D	Total
Marks	8	6	16	10	40

Note: any other correct and relevant answer should be accepted and awarded full marks.