

Class 10 Science: Classroom Assessment - Planning blueprint

20 marks | 45 minutes | Blueprint, question paper and marking points

Topic	Question numbers	Marks
Chemical reactions	1, 5, 7	6
Acids and bases	2, 8	4
Electricity	3, 6, 9	6
Life processes	4, 10	4
TOTAL	10 questions	20

Question mix

4 questions x 1 mark + 2 questions x 2 marks + 4 questions x 3 marks = 20 marks.

Use in class

A 45-minute classroom assessment across four taught areas. The student paper follows on the next page; the teacher key follows the paper.

Blank blueprint for your next assessment

Topic / outcome	Question numbers	Marks
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Class 10 Science: Classroom Assessment - Student copy

20 marks | 45 minutes | Blueprint, question paper and marking points

Name: _____ Class / section: _____ Date: _____

Answer every question. Show relationships, calculations and reasoning where asked. Data labelled hypothetical is supplied for this classroom task.

Question 1 - 1 mark

An iron nail develops a copper coating in copper sulphate solution. Which reaction type best describes this? A. Decomposition B. Displacement C. Combination D. Neutralisation

Question 2 - 1 mark

Which sample would turn blue litmus red? A. pH 3 B. pH 7 C. pH 9 D. pH 11

Question 3 - 1 mark

A wire is replaced with one of the same material and cross-sectional area but twice the length, at the same temperature. Its resistance becomes: A. half B. unchanged C. twice D. four times

Question 4 - 1 mark

In a covered-leaf investigation, which preparation helps ensure that detected starch was made during the investigation? A. Watering twice B. Destarching C. Adding salt D. Removing the roots

Question 5 - 2 marks

Balance $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$. Explain why changing MgO to MgO_2 is not a valid way of balancing this reaction.

Question 6 - 2 marks

A 3-ohm resistor is connected across 6 V. Calculate the current. What is the current if the resistance becomes 6 ohms while the voltage stays the same?

Question 7 - 3 marks

An iron nail in copper sulphate solution develops a reddish-brown deposit. Name the deposit, explain why the reaction occurs and write the balanced equation.

Question 8 - 3 marks

Dilute hydrochloric acid is gradually added to dilute sodium hydroxide. The pH falls from 11 towards 7. Identify the reacting ions, name the salt formed and explain what happens if excess acid is added.

Question 9 - 3 marks

A 6-ohm resistor and a 3-ohm resistor are connected in parallel across 6 V. Calculate both branch currents. Hence find the total current and equivalent resistance.

Question 10 - 3 marks

In a hypothetical investigation, otherwise similar plants lose 6 g of water per hour in dry air and 2 g per hour in humid air. Which condition has higher transpiration? Explain the pattern and name one variable that should be controlled.

Class 10 Science: Classroom Assessment - Teacher key

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Award one mark for each numbered point below. Accept equivalent scientifically correct wording and valid methods. The final point may contain a linked calculation or conclusion.

Question 1 - 1 mark

1. B. Displacement.

Question 2 - 1 mark

1. A. The pH 3 sample is acidic.

Question 3 - 1 mark

1. C. Twice, using $R = \rho L/A$.

Question 4 - 1 mark

1. B. Destarching.

Question 5 - 2 marks

1. $2 \text{ Mg} + \text{O}_2 \rightarrow 2 \text{ MgO}$.
2. Changing the formula changes the identity of the substance; balancing uses coefficients.

Question 6 - 2 marks

1. $I = 6/3 = 2 \text{ A}$.
2. $I = 6/6 = 1 \text{ A}$.

Question 7 - 3 marks

1. The deposit is copper.
2. Iron is more reactive than copper and displaces it from copper sulphate.
3. $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$.

Question 8 - 3 marks

1. Hydrogen ions react with hydroxide ions to form water: $\text{H}^+ + \text{OH}^- \rightarrow \text{H}_2\text{O}$.
2. Sodium chloride is the salt formed.
3. Excess acid leaves excess hydrogen ions, so the solution becomes acidic and its pH falls below 7.

Question 9 - 3 marks

1. Current through the 6-ohm branch = $6/6 = 1$ A.
2. Current through the 3-ohm branch = $6/3 = 2$ A.
3. Total current = 3 A and equivalent resistance = $6/3 = 2$ ohms.

Question 10 - 3 marks

1. Transpiration is higher in dry air.
2. A larger water-vapour concentration difference between the leaf and surrounding dry air favours evaporation and diffusion.
3. Accept a relevant control such as leaf area, temperature, light intensity or air movement.