


Unit 9 Common acids and alkalis**Pre-lesson Task (PL)****9.1 Common acids and alkalis****A. Acids B. Alkalis**

1. [Acids][Alkalis] (📖 Book 2B P.3-6)
2. (📖 Log Book) Make your own notes about common acids and alkalis: <ol style="list-style-type: none"> List some substances that contain acids and name the acids they contain if possible. Also state ONE common property of the acids found in drinks and foods. List some substances that contain alkalis name the alkalis they contain if possible. Also state TWO common property of the alkalis found in daily life. Name some acids and alkalis used in the school laboratory. Also state TWO common property of the acids and alkalis in the laboratory.

9.2 Distinguishing acids and alkalis**A. Natural indicators**

3. [Natural indicators] (📖 Book 2B P.7)
4. (📺 Video)[The story of Robert Boyle's discovery of acid-alkali indicators]  http://eresources.oupchina.com.hk/NMASCI/video/nms_ani0901_e.html
5. (📖 Log Book) Briefly describe the 4 steps of scientific investigation in Boyle's discovery: (📖 Book 2B P.11) <ol style="list-style-type: none"> the observation made; the hypothesis formed; the experiment carried out; and the conclusion made.
6. (📖 Log Book) Finish Practical 9.1 [Comparing colour of plant extracts in acids and alkalis] (📖 Book 2B P.7-9)

B. Litmus

7. [Litmus] (📖 Book 2B P.12)
8. (📖 Log Book) Finish Practical 9.2 [Comparing the colours of litmus paper in acidic and alkaline solution] (📖 Book 2B P.12-13)
9. (📖 Log Book) Finish Pre-lab Task of Practical 9.3 [Using litmus paper to classify solutions as being acidic, alkaline or neutral] (📖 Book 2B P.14)
10. (📖 Log Book) Make your own notes about litmus: <ol style="list-style-type: none"> The colour changes of litmus papers in different solutions; Draw a flow chart to show the steps to find out whether a solution is acidic, alkaline or neutral.

C. Universal indicator and the pH scale

11. [Universal indicator][pH value] (📖Book 2B P.15-16, 19)
12. (📖Log Book) Finish Practical 9.4 [Using pH paper to measure the pH of some substances] (📖Book 2B P.16-17)
13. (📖Log Book) Finish Practical 9.5 [Using universal indicator to measure the pH of some household products] (📖Book 2B P.18)
14. (📖Log Book) Make your own notes about universal indicator, pH paper and pH value: (a) The difference between litmus paper and universal indicator; (b) The relationship between acidity or alkalinity of solutions and their pH values
15. Situation: “The labels of the bottles containing the following solutions are damaged: vinegar, limewater, sodium hydroxide solution and distilled water. ” (📖Log Book) Design and conduct an experiment to identify the solutions W, X, Y and Z. (a) Materials provided: a few pieces of red litmus paper, a few pieces of blue litmus papers and 2 pieces of pH paper (a) Draw a flow chart to show the steps to identify the solutions.

D. pH meter and data logger

16. [pH meter] [data logger] (📖Book 2B P.20, 23)
17. (📖Log Book) Practical 9.6 [Comparing universal indicator and pH meter in measuring pH] (📖Book 2B P.21-22)
18. (📖Log Book) Make your own notes about pH meter and data logger: (a) What are pH meter and data logger; (b) Give a brief comparison between universal indicator (pH paper) and pH meter

9.3 Neutralization

A. What neutralization is?

19. [Neutralization] (📖Book 2B P.25, 29)
20. (📖Log Book) Practical 9.7 [Change in pH during neutralization] (📖Book 2B P.25-27)
21. (📖Log Book) Practical 9.8 [Products of neutralization] (📖Book 2B P.28-29)
22. [More about word equations of neutralization] (📖Book 2B P.30)
23. (📖Log Book) Practical 9.9 [Conservation of mass in neutralization] (📖Book 2B P.32-33)

B. Applications of neutralization

24. [Applications of neutralization] (📖Book 2B P.34-35)
25. (📖Log Book) Make your own notes about the applications of neutralization: (a) Give daily life examples of neutralization; (b) Explain how neutralization works

9.4 Corrosive nature of acids

A. Effect of acids on metals

26. (📖Log Book) Practical 9.10 [Reactions of dilute acid with some metals] (📖Book 2B P.37-39)
27. [Word equations of reactions between dilute acids and metals] (📖Book 2B P.40)

B. Effect of acids on building materials

28. [Effect of acids on building materials] (📖Book 2B P.40, 43)
29. (📖Log Book) Practical 9.11 [Reactions of dilute acid with some building material] (📖Book 2B P.41-42)
30. [Word equations of reactions between dilute acids and carbonates] (📖Book 2B P.44)

C. Acid rain

31. [Acid rain][Cause of acid rain] (📖Book 2B P.45)
32. [Effects of acid rain on environment and living things] (📖Book 2B P.46-49)
33. (📖Log Book) Practical 9.12 [Effect of acid rain on the growth of seedings] (📖Book 2B P.47-48)