

# 34 Basicity and phenylamine – Part 2

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

## Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

| English     | 中文   | Write it 3 times (English) |
|-------------|------|----------------------------|
| Phenylamine | 苯胺   | _____                      |
| basicity    | 碱性   | _____                      |
| lone pair   | 孤对电子 | _____                      |

## Recall

Amines are bases. **Phenylamine** 苯胺 is an amine with the  $\text{-NH}_2$  on a benzene ring.

## New ideas

Read these first, then do the Practice.

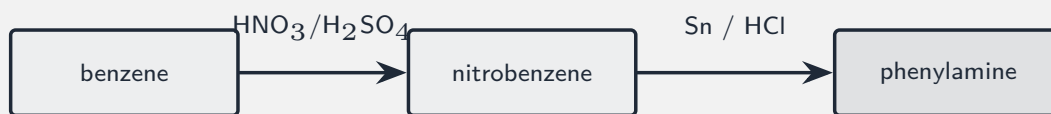
### ■ 1 Why amines are basic



the lone pair accepts an  $\text{H}^+$  – so it is basic

The **basicity** 碱性 of an amine comes from the **lone pair** 孤对电子 on its nitrogen, which can accept an  $\text{H}^+$  from water.

### ■ 2 Making phenylamine



Make phenylamine from benzene in two steps: nitrate it to nitrobenzene, then reduce it with Sn and concentrated HCl.

**Watch out:** an amine is basic because its nitrogen *lone pair* accepts an H<sup>+</sup>. Phenylamine is a *weaker* base than an aliphatic amine, because the ring draws that lone pair away.

## Practice

Try these in order.

**34.6** Where does an amine's basicity come from? [1]

**34.7** What does the lone pair accept? [1]

**34.8** What is *phenylamine*? [1]

**34.9** What is the first step in making phenylamine from benzene? [1]

**34.10** What reagent reduces nitrobenzene to phenylamine? [1]

**34.11 Challenge.** Phenylamine is a *weaker* base than ethylamine. Explain why, in terms of the nitrogen's lone pair. [2]