

32 Phenol – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)
Phenol	_____
benzene	_____

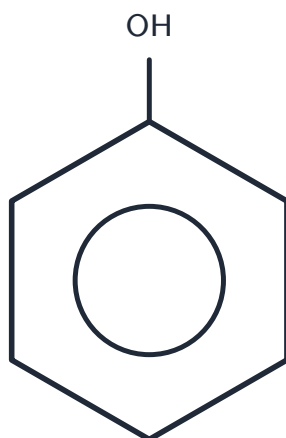
Recall

Phenol has an –OH group joined directly to a **benzene** ring. This changes its chemistry.

New ideas

Read these first, then do the Practice.

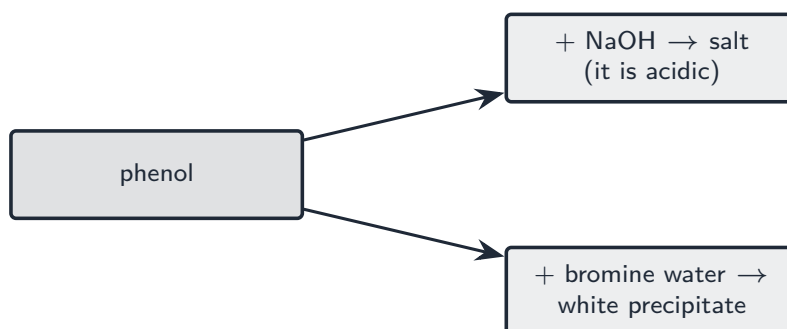
■ 1 Phenol's structure



phenol: OH joined to the ring

Because the -OH is on the ring, phenol is *more acidic* than an ordinary alcohol, and its ring is *more reactive*.

■ 2 Phenol's reactions



- with NaOH(aq) : phenol reacts (an ordinary alcohol does not) – it is acidic;
- with bromine water at room temperature (no catalyst): a white precipitate of 2,4,6-tribromophenol.

Watch out: because the -OH sits *on* the ring, phenol is *more acidic* than an alcohol (it reacts with NaOH) *and* its ring is *more reactive* (it brominates with bromine water with no catalyst needed).

Practice

Try these in order.

32.6 What is joined directly to the ring in *phenol*? [1]

32.7 Is phenol more or less acidic than an ordinary alcohol? [1]

32.8 What happens when phenol meets NaOH(aq)? [1]

32.9 Do ordinary alcohols react with NaOH? [1]

32.10 What does phenol form with bromine water? [1]

32.11 Challenge. Phenol decolourises bromine water at room temperature with no catalyst, but benzene needs a halogen carrier and harsher conditions. Explain why phenol's ring is more reactive. [2]
