

36 Identifying functional groups – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English

Write it 3 times (English)

functional group

phenol

acyl chloride

Recall

Synthesis means joining known reactions to build a target molecule. First, you must spot the **functional group** you are dealing with.

New ideas

Read these first, then do the Practice.

■ 1 Identification tests

reagent	result	group
bromine water, no catalyst	white precipitate	phenol / phenylamine
cold water	HCl fumes	acyl chloride
neutral FeCl ₃	purple colour	phenol

Each reagent gives a result that points to a group: a white precipitate with bromine water (no catalyst) → a **phenol** or phenylamine; HCl fumes with cold water → an **acyl chloride**; a purple colour with neutral FeCl₃ → a phenol.

■ 2 Building a target



join known reactions to reach the target

Once you know the groups, join known reactions step by step to reach the target.

Watch out: match each result to its group – a white precipitate with bromine water (no catalyst) means a phenol/phenylamine, a purple colour with neutral FeCl_3 means a phenol, and HCl fumes with cold water mean an acyl chloride.

Practice

Try these in order.

36.1 What does a *white precipitate* with bromine water (no catalyst) suggest? [1]

36.2 What gives off HCl fumes with cold water? [1]

36.3 What colour does a *phenol* give with neutral FeCl_3 ? [1]

36.4 What does *synthesis* mean? [1]

36.5 What must you do before planning a synthesis? [1]

36.6 Challenge. A compound gives a white precipitate with bromine water *and* a purple colour with neutral FeCl_3 . Identify the functional group, and explain. [2]
