

## Acids and Bases Worksheet

1. Acids and bases share some properties but are different in others. Use the samples at the side of the class to complete the chart. If both acids and bases share the property, place it in both columns.

Property	Acids	Bases
Conductivity in Aqueous Solution	Very	Very
Taste	Sour	Bitter
Feel	—	Slippery
Reaction with Metal	produces $H_2$ gas	—
Reaction with Carbonate	produces $CO_2$ gas	—
Colour on Litmus Paper	Red	Blue.
Colour with Universal Indicator	Red	Purple.
Colour with phenolphthalein	Colourless	pink.

2. Indicate if each compound is an acid or base and name it.

	Acid/Base?	Name
$HNO_3$	<u>A</u>	<u>nitric acid</u>
$Mg(OH)_2$	<u>B</u>	<u>magnesium hydroxide</u>
$H_3PO_4$	<u>A</u>	<u>phosphoric acid</u>
$H_2CO_3$	<u>A</u>	<u>carbonic acid</u>
HF	<u>A</u>	<u>hydrofluoric acid</u>
$Fe(OH)_3$	<u>B</u>	<u>iron (III) hydroxide.</u>

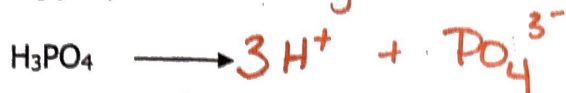
3. Write the formula for each of the following acids/bases:

hydrochloric acid	<u>HCl</u>	hydrochloric acid	<u>HCl</u>
aluminum hydroxide	<u><math>Al(OH)_3</math></u>	sodium hydroxide	<u>NaOH</u>
lithium hydroxide	<u>LiOH</u>	calcium hydroxide	<u><math>Ca(OH)_2</math></u>
sulfuric acid	<u><math>H_2SO_4</math></u>	sulfurous acid	<u><math>H_2SO_3</math></u>

4. Write chemical equations showing how each of the following dissolves in water:



(IONIZATION)



5. For each reaction type, complete the equations and balance them.

a) Making Acids from Non-metal Oxides

General form: *non-metal oxide + water*  $\longrightarrow$  *acid*



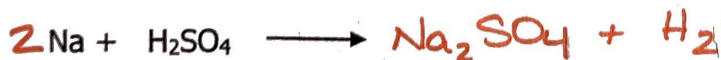
b) Making Bases from Metal Oxides:

General form: *metal oxide + water*  $\longrightarrow$  *base*



c) Reactions of Acids 1: Reaction with Metals

General form: *metal + acid*  $\longrightarrow$  *salt + hydrogen*



d) Reactions of Acids 2: Reaction with Carbonates

General form: *acid + carbonate*  $\longrightarrow$  *salt + water + carbon dioxide*

