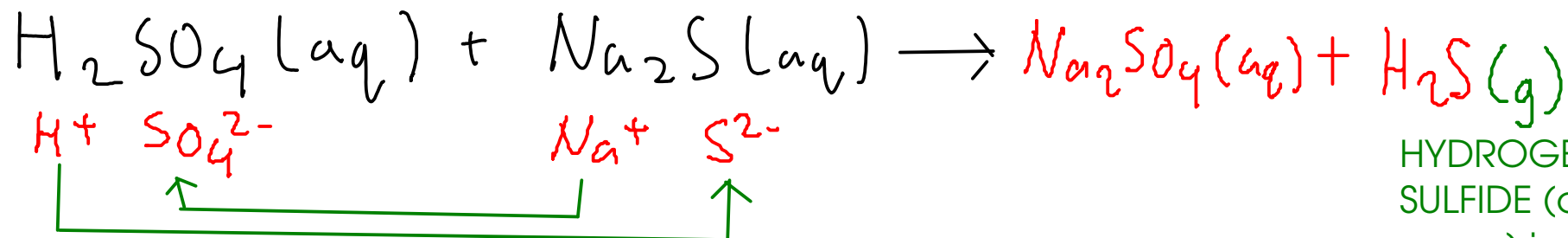


DOUBLE REPLACEMENTS THAT FORM GASES

① Formation of hydrogen sulfide: H_2S

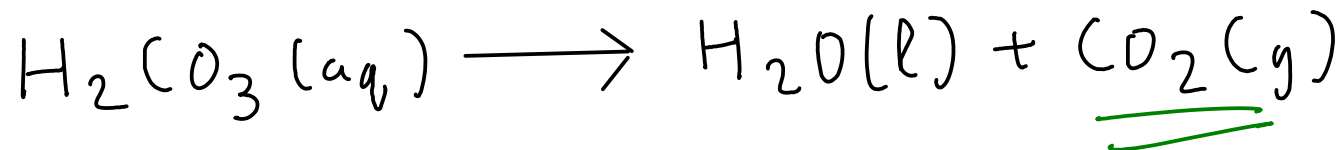
- need an ACID (source of hydrogen ion) and a SULFIDE

Observation:
- GAS BUBBLES
- ODOR



HYDROGEN
SULFIDE (common
name) is a gas
with a distinct
ROTTEN EGG
odor!

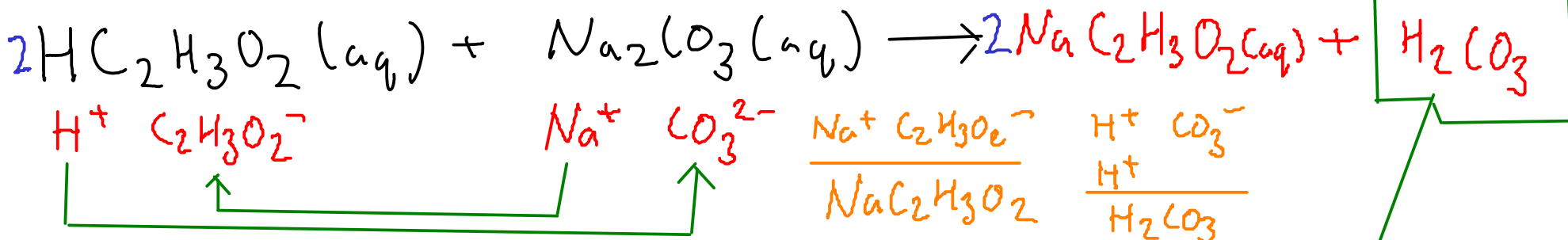
② Formation of carbonic acid and carbon dioxide:



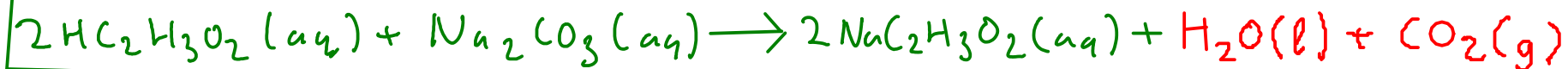
- to form carbonic acid by double replacement, you need a source of hydrogen ion (ACID) and a source of carbonate (can be CARBONATE or BICARBONATE)



Example of a reactions that forms carbonic acid, then gas:



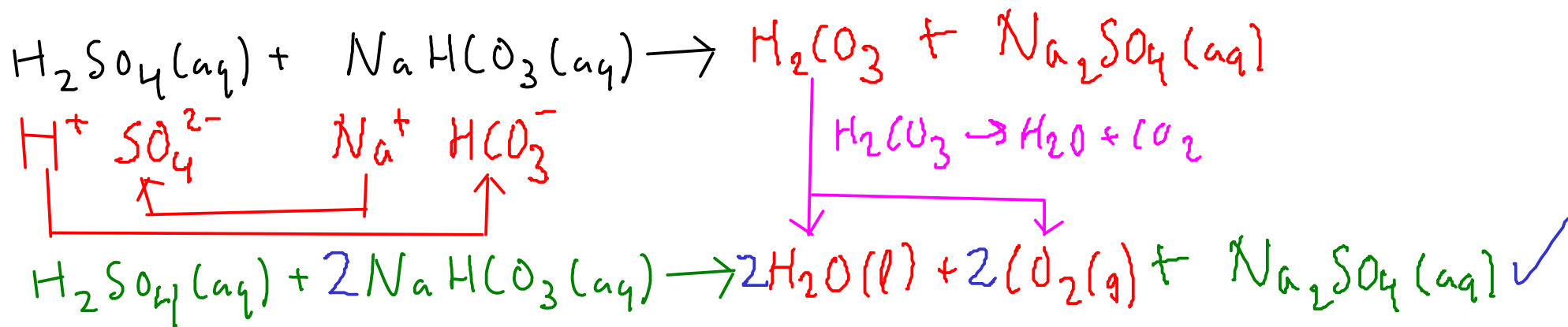
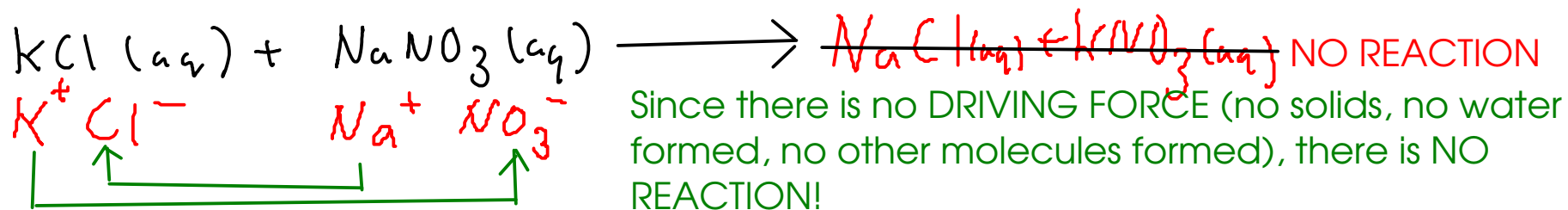
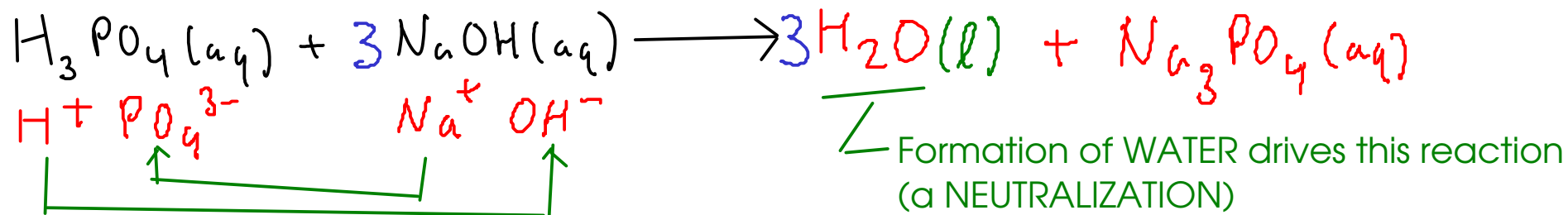
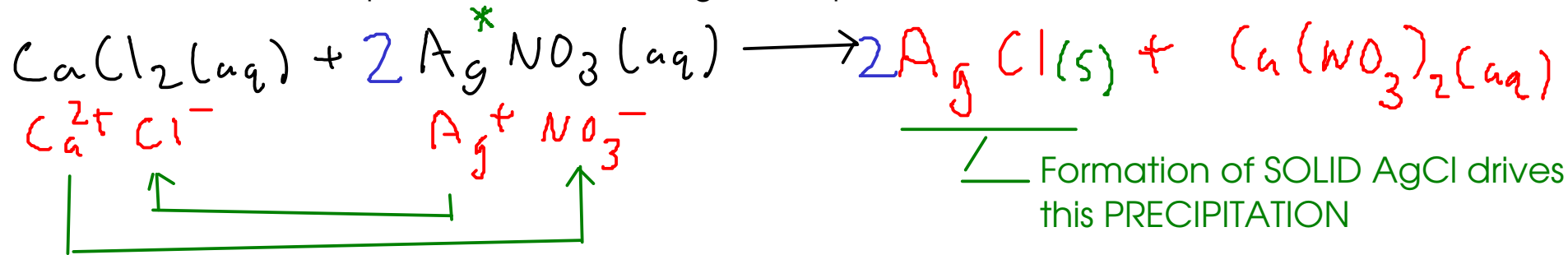
... but carbonic acid decomposes, and we get GAS BUBBLES



This is the overall process. We show carbon dioxide and water as products, since we want to show the reaction as it's actually observed -with carbonic acid broken down to water and (gaseous) carbon dioxide.

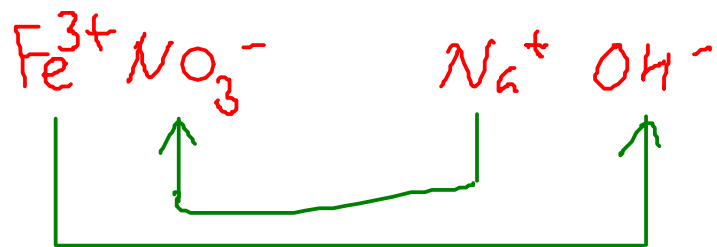
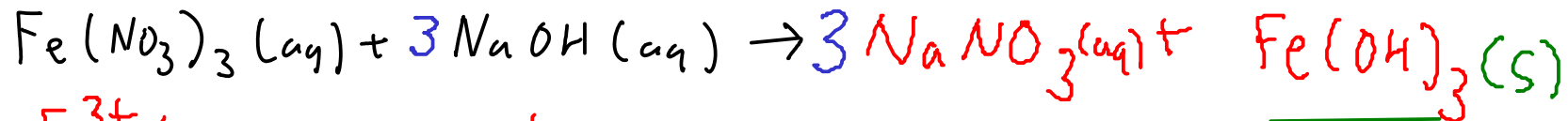
A few more double replacement / exchange examples:

See page 127 for a solubility chart

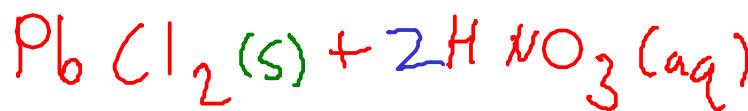
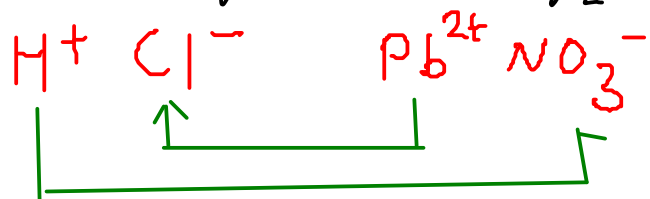
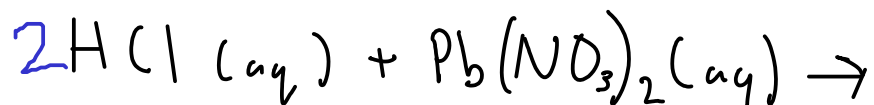


* Transition metals (like silver, iron, etc.) do not change charge during exchange reactions!

*Reminder: Transition metals do not change charge during an exchange reaction!



Formation of solid iron(III) hydroxide drives this PRECIPITATION



Formation of solid lead(II) chloride drives this reaction!