http://www.teachersource.com/product/air-zooka/air-pressure - Air Zooka

Densities of Common Elements and Compounds	
Substance	Density grams per mL
Hydrogen gas	0.000089
Helium gas	0.00018
Air	0.00128
Carbon Dioxide	0.001977
Water	1.00

Vinegar is acetic acid: CH_3COOH

Baking soda is sodium bicarbonate: $NaHCO_3$

Mixing the two is simply and acid base reaction.

$CH_3COOH + NaHCO_3 \rightarrow CH_3COONa + H2CO_3$

That last product is carbonic acid which quickly decomposes into carbon dioxide and water:

$H_2CO_3 \rightarrow H_2O + CO_2$

The CO2 is what you see foaming and bubbling in this reaction.

Sodium bicarbonate and vinegar => Sodium acetate and water and carbon dioxide

$NaHCO_3 + CH_3COOH \Rightarrow CH_3COO^-Na^+ + H_2O + CO_2$