'Matching heads and tails' exercise

From: Smith, D. *The SPEAL project: Material and their properties*. London: Islington LEA (compiled by John Clegg)

pH - Testing acids and alkalis.

The pH scale measures how acidic substances are.

pH	1 - 4	5 - 6	7	8 - 10	11 - 14
	Strong acid	Weak acid	Neutral	Weak alkali	Strong alkali
Example	Sulphuric acid	Orange juice	Water	Toothpaste	Sodium hydroxide

a) True or False ?

- Water has a pH of 7.
- Orange juice has a pH of about 5. It is a strong acid.
- Acids have a high pH.
- A liquid with a pH of 12 is a strong alkali.
- Toothpaste has a pH of about 9. It is a weak acid.
- Sulphuric acid has a lower pH than orange juice.
- Water is neutral. It is neither acid nor alkali.
- Sodium hydroxide has a high pH.
- Alkalis have a pH higher than 7.
- Water has a higher pH than orange juice.

b) Match a sentence from Box 1 with a sentence from Box 2.

Box 1.

a) Vinegar has a pH of about 4.
b) Sodium hydroxide is a strong alkali.
c) Sulphuric acid and hydrochloric acid have a pH of 1 - 2.
d) Toothpaste has a pH of 8 and sodium carbonate has a pH of 9.
e) Nitric acid has a pH of 1 -2 and vinegar has a pH of about 4.
f) Sodium hydroxide has a pH of 12, but sodium carbonate has a pH of 9.
g) Water has a pH of 7.

Box 2.

a) Therefore sodium hydroxide is a stronger alkali than sodium carbonate.
b) So, they are both strong acids.
c) So, they are both weak alkalis.
d) So, it is a fairly strong acid.
e) Therefore it is neutral.
f) Therefore nitric acid is a stronger acid than vinegar.
g) It has a pH of 12 - 14.