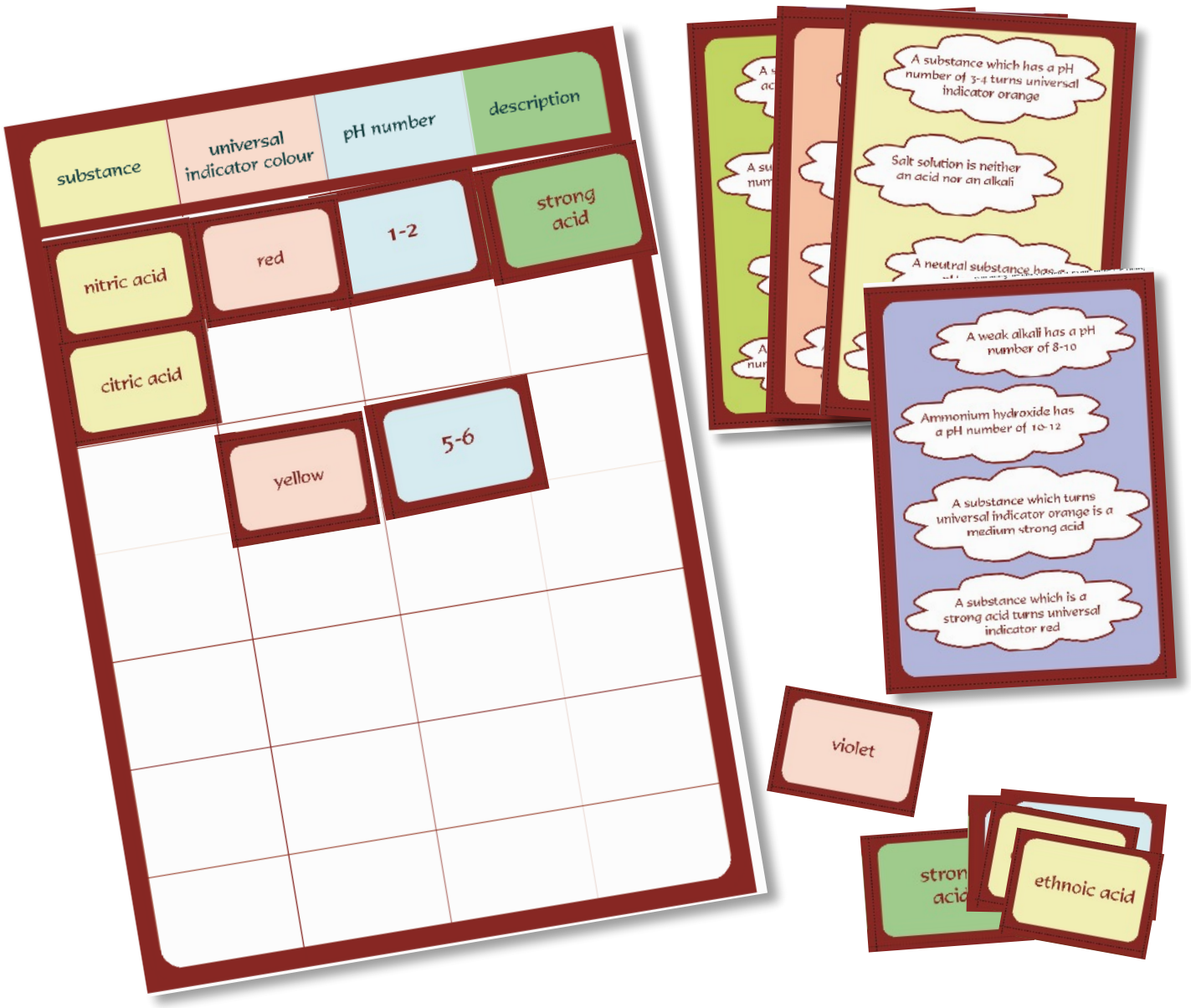
Acids and Alkalis



This matching activity is designed to enable students to understand the nature of the continuum from strong acid through neutral substance to strong alkali and it encourages pupils to work collaboratively to complete their task.

Suitable for pupils aged 13+

The Learning Outcome will be that students will have reinforced their knowledge of the relationship between substance description, pH number and universal indicator colour.

Acids and Alkalis

Touch arrow to begin, then i for information

Developed by Ian Leaver and Steve Cooke at Soar Valley College in Leicester

Theme: Acid and Alkalis
Age range: 13+

Context:
This Chemistry activity is designed to enable students to understand the nature of the continuum from strong acid through neutral substance to strong alkali and to understand the relationship between substance description, pH number and universal indicator colour. This matching, sequencing activity encourages pupils to work collaboratively to complete their task.
If you make your own version please send it to the address below to help us expand our library.

Preparation:
Print out the A4 sheets.
If possible, laminate the "baseboards" and cover the pages of the cards with 'clear pvc self adhesive film'. Then cut along the dotted lines to make the cards.

HOW TO PLAY:
This game is for two teams of four players. Each team is given a Matrix board, a set of Matrix cards and a set of four Clue cards. "Which substances are acids and which are alkalis? What are the characteristics of these substances?". Within a team, each member take a clue card and work together to arrange the cards on the matrix using their prior knowledge and the clues provided. The information on the Clue cards is linguistically relatively simple, but the Clue cards take the form of "logic problem" sentences and need careful reading and thinking through.

Learning Outcomes:
Students will have reinforced their knowledge of the relationship between substance description, pH number and universal indicator colour and will be able to understand the nature of neutral substance, acid and alkalis. If you have found further learning outcomes please share them by emailing collaborate@mantralingua.com.

weak alkali	strong acid	8-10	1-2
medium strong alkali	medium strong acid	11-12	3-4
strong alkali	weak acid	13-14	5-6
	neutral substance		7

Acids and Alkalis - Matrix Cards

(Cut along the black dotted lines and make the cards)

blue green	red	sodium bicarbonate	nitric acid
blu	orange	ammonium hydroxide	citric acid
violet	yellow	sodium hydroxide	ethnoic acid
	green		salt solution

Acids and Alkalis - Matrix Cards

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	green		salt solution

Acids and Alkalis - Matrix Cards

Acids and Alkalis - Clue Cards

(Cut along the black dotted lines and make the cards)

A substance which has a pH number of 3-4 turns universal indicator orange

Salt solution is neither an acid nor an alkali

A neutral substance has a pH number of 7

Nitric acid is a strong acid

A weak alkali has a pH number of 8-10

Ammonium hydroxide has a pH number of 10-12

A substance which turns universal indicator orange is a medium strong acid

A substance which is a strong acid turns universal indicator red

A substance which is a weak acid does not turn universal indicator blue-green

A substance which has a pH number of 7 turns universal indicator green

A substance which turns universal indicator red has a pH number of 1-2

A substance which has a pH number of 10-12 turns universal indicator blue

Sodium hydroxide is a strong alkali

Citric acid has a pH number of 3-4

A substance which is a weak acid has a pH number of less than 7

A weak alkali turns universal indicator blue-green

Acids and Alkalis - Clue Cards

(Cut along the black dotted lines and make the cards)

A substance which has a pH number of 3-4 turns universal indicator orange

Salt solution is neither an acid nor an alkali

A neutral substance has a pH number of 7

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A substance which turns universal indicator orange is a medium strong acid

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A substance which is a weak acid does not turn universal indicator blue-green

A substance which has a pH number of 7 turns universal indicator green

A substance which turns universal indicator red has a pH number of 1-2

A substance which has a pH number of 10-12 turns universal indicator blue

Sodium hydroxide is a strong alkali

Citric acid has a pH number of 3-4

A substance which is a weak acid has a pH number of less than 7

A weak alkali turns universal indicator blue-green

Acid and Alkalis -Matrix Board

(This is the top half of the game board. Cut along the dotted line and glue to the bottom one, mount or laminate.)

substance	universal indicator colour	pH number	description

(This is the bottom half of the game board. Glue to the top one, mount or laminate.)

Acid and Alkalis -Matrix Board

(This is the top half of the game board. Cut along the dotted line and glue to the bottom one, mount or laminate.)

substance	universal indicator colour	pH number	description

(This is the bottom half of the game board. Glue to the top one, mount or laminate.)