

NEUTRALISATION RULES

Teacher notes:

There are now two versions one with left/right direction instructions on the cards and one without. When there are no instructions players have to decide whether they are becoming more acidic or alkaline. If you have space or play with two pairs of players you might want to enlarge the game board to A3.

This activity was developed by John Barrett and John McAllister at Westfield Middle School in Bedford UK in 1997.

Last updated 11th March 2009

The webaddress for this activity is: <http://collaborativelearning.org/neutralisationrules.pdf>

COLLABORATIVE LEARNING PROJECT

Project Director: Stuart Scott

Supporting a cooperative network of teaching professionals throughout the European Union to develop and disseminate accessible teaching materials in all subject areas and for all ages.

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BRIEF SUMMARY OF BASIC PRINCIPLES BEHIND OUR TEACHING ACTIVITIES:

The project is a teacher network, and a non-profit making educational trust. Our main aim is to develop and disseminate classroom tested examples of effective group strategies across all phases and subjects. We hope they will inspire you to use similar strategies in other topics and curriculum areas. We run teacher workshops, swapshops and conferences throughout the European Union. The project publishes a catalogue of activities plus lists in selected subject areas, and a newsletter available by post or internet: "PAPERCLIP".

*These activities were influenced by current thinking about the role of language in learning. They are designed to help children learn through talk and active learning in small groups. They work best in mixed classes where children in need of language or learning support are integrated. They are well suited for the development of speaking and listening . They provide teachers opportunities for spoken language and other assessment.

*They support differentiation by placing a high value on what children can offer to each other on a particular topic, and also give children the chance to respect each other's views and formulate shared opinions which they can disseminate to peers. By helping them to take ideas and abstract concepts and move them about physically they help to develop thinking skills.

*They give children the opportunity to participate in their own words and language in their own time without pressure. Many activities can be tried out in mother tongue and afterwards in English. A growing number of activities are available in more than one language, not translated, but mixed, so that you may need more than one language to complete the activity.

*They encourage study skills in context, and should therefore be used with a range of appropriate information books which are preferably within reach in the classroom.

*They are generally adaptable over a wide age range because children can bring their own knowledge to an activity and refer to books at an appropriate level. The activities work like catalysts.

*All project activities were planned and developed by teachers working together, and the main reason they are disseminated is to encourage teachers to work effectively with each other inside and outside the classroom. They have made it possible for mainstream and language and learning support teachers to share an equal role in curriculum delivery. They should be adapted to local conditions. In order to help us keep pace with curriculum changes, please send any new or revised activities back to the project, so that we can add them to our lists of materials.

NEUTRALISATION RULES

HOW TO PLAY

The game is for two players or two pairs of players. Each player has a counter. You also need dice or a spinner. One player starts as an acid, and places their counter at the start on the left end of the board, and the other as an alkali at the right end of the board. The cards should be shuffled and placed upside down in a pile.

The aim is to reach the neutral square at pH7. Players take turns to throw dice or spin spinners and move in either direction. At each turn players should also pick up a card and follow instructions.

The game continues until a player is neutralised. An exact number must be thrown to finish. If too large a number is thrown you must overshoot the neutral square and try to get back.

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Neutralisation Rules Game Board

Start	1	2	3	4	5	6	7	8	9	10	11	12	13	Start
							Neutral							



Add one drop of hydrochloric acid
Move two spaces left.

Add five drops of vinegar.
Move two spaces left.

Add two drops of ammonia solution.
Move two spaces right.

Add three drops of lemon juice.
Move one space left.

Add six drops of lime water.
Move two spaces right.

Add two drops of sodium hydroxide.
Move three spaces right.

Add two drops of orange juice.
Move one space left.

Add two drops of potassium hydroxide.
Move two spaces left.

Add eight drops of water.
Miss a turn.

Add one drop of sulphuric acid.
Move two spaces left.

Add one spatula of calcium hydroxide.
Move five spaces right.

Add three drops of sodium hydroxide.
Move three spaces left.

Neutralisation Rules Game cards with instructions.



Add three drops of hydrochloric acid.
Move three spaces left.

Add two drops of vinegar.
Move one space left.

Add four drops of ammonia solution.
Move three spaces right.

Add three drops of lemon juice.
Move one space left.

Add four drops of lime water.
Move one space right

Add one drop of sodium hydroxide.
Move two spaces right

Add five drops of orange juice.
Move two spaces left.

Add three drops of potassium hydroxide.
Move four spaces left.

Add three drops of water.
Miss a turn

Add three drops of sulphuric acid.
Move three spaces left.

Add one spatula of calcium hydroxide.
Move five spaces right.

Add one drop of sodium hydroxide.
Move one space left.



Add one drop of hydrochloric acid
Move two spaces .

Add five drops of vinegar.
Move two spaces.

Add two drops of ammonia solution.
Move two spaces.

Add three drops of lemon juice.
Move one space.

Add six drops of lime water.
Move two spaces.

Add two drops of sodium hydroxide.
Move three spaces.

Add two drops of orange juice.
Move one space.

Add two drops of potassium hydroxide.
Move two spaces.

Add eight drops of water.

Add one drop of sulphuric acid.
Move two spaces.

Add one spatula of calcium hydroxide.
Move five spaces.

Add three drops of sodium hydroxide.
Move three spaces.



<p>Add three drops of hydrochloric acid. Move three spaces.</p>	<p>Add two drops of vinegar. Move one space.</p>	<p>Add four drops of ammonia solution. Move three spaces.</p>	<p>Add three drops of lemon juice. Move one space.</p>
<p>Add four drops of lime water. Move one space.</p>	<p>Add one drop of sodium hydroxide. Move two spaces.</p>	<p>Add five drops of orange juice. Move two spaces.</p>	<p>Add three drops of potassium hydroxide. Move four spaces.</p>
<p>Add three drops of water.</p>	<p>Add three drops of sulphuric acid. Move three spaces.</p>	<p>Add one spatula of calcium hydroxide. Move five spaces.</p>	<p>Add one drop of sodium hydroxide. Move one space.</p>

Neutralisation Rules Game cards without direction instructions