

gridlocks – can you unlock the grid?

Alkalis and salts

Before you answer the puzzles below fill in the table about alkalis using:

sodium chloride potassium sulfate lithium hydroxide calcium chloride

| Alkali | Salt formed with hydrochloric acid | Salt formed with sulfuric acid |
|---------------------|------------------------------------|--------------------------------|
| sodium hydroxide | | sodium sulfate |
| calcium hydroxide | | calcium sulfate |
| potassium hydroxide | potassium chloride | |
| | lithium chloride | lithium sulfate |

Gridlock 1

Each row, column and 2 x 2 box contains each of the four alkalis or the salt they form with sulfuric acid. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

| name | | salt formed with sulfuric acid | |
|--------------------------------|-------------------|--------------------------------|------------------|
| sodium hydroxide | | | lithium sulfate |
| | lithium hydroxide | | |
| | | | sodium hydroxide |
| | | calcium hydroxide | |
| salt formed with sulfuric acid | | name | |

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Gridlock 2

Each row, column and 2 x 2 box contains each of the four alkalis or the salt they form with hydrochloric acid.

| name | | salt formed with hydrochloric acid | |
|------------------------------------|--------------------|------------------------------------|--|
| calcium hydroxide | | | |
| | | lithium chloride | |
| | | sodium hydroxide | |
| | potassium chloride | | |
| salt formed with hydrochloric acid | | name | |

Gridlock 3

Each row, column and 2 x 2 box contains each of the four alkalis or the salt they form with hydrochloric acid or sulphuric acid.

| name | | salt formed with hydrochloric acid | |
|--------------------------------|------------------|------------------------------------|---------------------|
| | sodium hydroxide | | lithium chloride |
| | | | sodium chloride |
| | | | |
| calcium sulfate | | | potassium hydroxide |
| salt formed with sulfuric acid | | name | |

Alkalis and salts – answers

Before you answer the puzzles below fill in the table of about alkalis using:

sodium chloride potassium sulfate lithium hydroxide calcium chloride

| Alkali | Salt formed with hydrochloric acid | Salt formed with sulfuric acid |
|---------------------|------------------------------------|--------------------------------|
| sodium hydroxide | sodium chloride | sodium sulfate |
| calcium hydroxide | calcium chloride | calcium sulfate |
| potassium hydroxide | potassium chloride | potassium sulfate |
| lithium hydroxide | lithium chloride | lithium sulfate |

Puzzle 1

Each row, column and 2 x 2 box contains each of the four alkalis or the salt they form with sulfuric acid. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

| name | | salt formed with sulfuric acid | |
|--------------------------------|-------------------|--------------------------------|---------------------|
| sodium hydroxide | calcium hydroxide | potassium sulfate | lithium sulfate |
| potassium hydroxide | lithium hydroxide | sodium sulfate | calcium sulfate |
| calcium sulfate | potassium sulfate | lithium hydroxide | sodium hydroxide |
| lithium sulfate | sodium sulfate | calcium hydroxide | potassium hydroxide |
| salt formed with sulfuric acid | | name | |

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Puzzle 2

Each row, column and 2 x 2 box contains each of the four alkalis or the salt they form with hydrochloric acid.

| name | | salt formed with hydrochloric acid | |
|------------------------------------|--------------------|------------------------------------|---------------------|
| calcium hydroxide | lithium hydroxide | potassium chloride | sodium chloride |
| potassium hydroxide | sodium hydroxide | lithium chloride | calcium chloride |
| lithium chloride | calcium chloride | sodium hydroxide | potassium hydroxide |
| sodium chloride | potassium chloride | calcium hydroxide | lithium hydroxide |
| salt formed with hydrochloric acid | | name | |

Puzzle 3

Each row, column and 2 x 2 box contains each of the four alkalis or the salt they form with hydrochloric acid or sulphuric acid.

| name | | salt formed with hydrochloric acid | |
|--------------------------------|-------------------|------------------------------------|---------------------|
| potassium hydroxide | sodium hydroxide | calcium chloride | lithium chloride |
| lithium hydroxide | calcium hydroxide | potassium chloride | sodium chloride |
| sodium sulfate | potassium sulfate | lithium hydroxide | calcium hydroxide |
| calcium sulfate | lithium sulfate | sodium hydroxide | potassium hydroxide |
| salt formed with sulfuric acid | | name | |