## Esters from alcohols and acids

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


## Gridlock 1

Each row, column and $2 \times 2$ box contains an ester made from each of the four alcohols. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

| made from methanoic acid |  |  | made from ethanoic acid |
| :---: | :---: | :---: | :---: |
|  | methylmethanoate |  | butylethanoate |
|  |  |  | methylethanoate |
|  |  |  |  |
| ethylethanoate |  |  | propylmethanoate |

## gridlockS - can you unlock the grid?

## Gridlock 2

Each row, column and $2 \times 2$ box contains an ester made from each of the four alcohols.

| made from propanoic acid |  |  | made from butanoic acid |
| :---: | :---: | :---: | :---: |
| ethylpropanoate |  |  | methylbutanoate |
|  |  |  |  |
| propylbutanoate |  |  | butylpropanoate |

## Gridlock 3

Each row, column and $2 \times 2$ box contains an ester made from each of the four alcohols.

| made from methanoic acid |  | made from ethanoic acid |  |
| :--- | :--- | :--- | :--- |
| ethylmethanoate |  |  |  |
|  |  | butylethanoate |  |
|  |  | methylbutanoate |  |
|  |  |  |  |

Esters from alcohols and acids - answers
Before you answer the puzzles below fill in the table of esters using:

| ethylmethanoate methylpropanoate propylethanoatebutylbutanoate <br> alcohol from <br> which the ester <br> is made |  | methanoic acid | ethanoic acid | propanoic acid |
| :---: | :---: | :--- | :--- | :--- |
| methanol | methylethanoate | methylmethanoate | methylpropanoate acid | methylbutanoate |
| ethanol | ethylmethanoate | ethylethanoate | ethylpropanoate | ethylbutanoate |
| propanol | propylmethanoate | propylethanoate | propylpropanoate | propylbutanoate |
| butanol | butylmethanoate | butylethanoate | butylpropanoate | butylbutanoate |

## Gridlock 1 - answers

| made from methanoic acid |  | made from ethanoic acid |  |
| :---: | :---: | :---: | :---: |
| propylmethanoate | methylmethanoate | ethylethanoate | butylethanoate |
| butylmethanoate | ethylmethanoate | propylethanoate | methylethanoate |
| methylethanoate | propylethanoate | butylmethanoate | ethylmethanoate |
| ethylethanoate | butylethanoate | methylmethanoate | propylmethanoate |
| made from ethanoic acid | made from methanoic acid |  |  |

## gridlockS - can you unlock the grid?

Gridlock 2 - answers

| made from propanoic acid |  | made from butanoic acid |  |
| :---: | :---: | :---: | :---: |
| ethylpropanoate | propylpropanoate | butylbutanoate | methylbutanoate |
| butylpropanoate | methylpropanoate | ethylbutanoate | propylbutanoate |
| methylbutanoate | ethylbutanoate | propylpropanoate | butylpropanoate |
| propylbutanoate | butylbutanoate | methylpropanoate | ethylpropanoate |

## Gridlock 3 - answers

| made from methanoic acid |  | made from ethanoic acid |  |
| :---: | :---: | :---: | :---: |
| ethylmethanoate | butylmethanoate | propylethanoate | methylethanoate |
| propylmethanoate | methylmethanoate | butylethanoate | ethylethanoate |
| butylpropanoate | ethylpropanoate | methylbutanoate | propylbutanoate |
| methylpropanoate | propylpropanoate | ethylbutanoate | butylbutanoate |

