



Tin



Mary had a little can
Though steel, 'twas covered in tin.
Not only was it free from rust,
It kept food fresh within.

Mary hammered her tin can
'Til battered, bent and dented.
She had to wait for fifty years
For the opener to be invented!

Rust will not attack tin cans,
But keep from cold, you must.
For when below minus ten
Tin cans can turn to dust.

On naval ships, in days of old,
The diet was quite bland,
But thanks to Peter Durand,
A solution was at hand.

He packed in meat and fruit and veg
In tin-plate cans - how yummy!
The food stayed fresh and healthy
And welcomed by each tummy.

So, Mary had her little tin.
She hoped that it held ham.
For being a good shepherdess,
She wouldn't be eating lamb!

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- Tin has been used by humans for around 10 000 years. However, around 3500 BC tin was combined with copper to make a new metal - bronze.
- Bronze was a revolutionary 'game changer' for the world. So much so, that a whole era of time was named after this new metal alloy* - **The Bronze Age**.
- Bronze combined the good points of both metals - it was harder than tin, but easily worked when hot.
- Tin was also combined with other metals to make pewter.
- Tin doesn't rust! This made it ideal as a coating for other metals to stop them rusting - tin plate!



INVESTIGATE THE SCIENCE

'Tin' cans were a revelation in the quest to preserve food from rotting. Food sealed from air inside a can could be kept for many years.

What other ways can be used to preserve food? The following images may give you some ideas.



Don't you get really annoyed when you take a bite out of your apple then, going back to it after taking a 'phone call, find it's started to turn brown? Well, that's the start of decay! Carry out the following investigation into how you can slow the process of decay in apples.

Preserving Apples

To prevent the apples from turning brown, cover portions of apples in a variety of substances and observe the rate of decay (how quickly they turn brown). The materials below are suggestions: you don't have to use them all.

Materials:

- **Kitchen measuring jug and spoons**
- **Apple slices or segments** of approximately equal size. If you have a gadget that cores and slices at the same time, this will do the job really well.
- **Honey** (1 teaspoon (5ml approx.) honey diluted with 100ml water)
- **Lemon juice** (1 teaspoon juice mixed with 100ml water)
- **Salt** (1/2 teaspoon salt mixed with 100ml water)
- **Vitamin C** (1 tablet crushed and dissolved in 100ml water)
- **Fizzy lemonade** (100ml)
- **Carbonated water** (fizzy water, 100ml)
- **Tap water** (100ml)
- **Experiment Control** (a slice of apple exposed to the air)
- **Enough bowls or saucers for each slice of apple tested.**

Method:

1. Label each bowl with the name of each solution. Label one bowl 'Control'.
2. Cut one apple into 8 slices of approximately the same size. Can you say why it's important for the slices to come from the same apple and that they are kept the same size?
3. Place an apple slice into each bowl.
4. *Immediately* cover segments with the appropriate solution.
5. One segment should be left exposed to the air - the control.
6. Leave the experiment for at least an hour before examining.

Results:

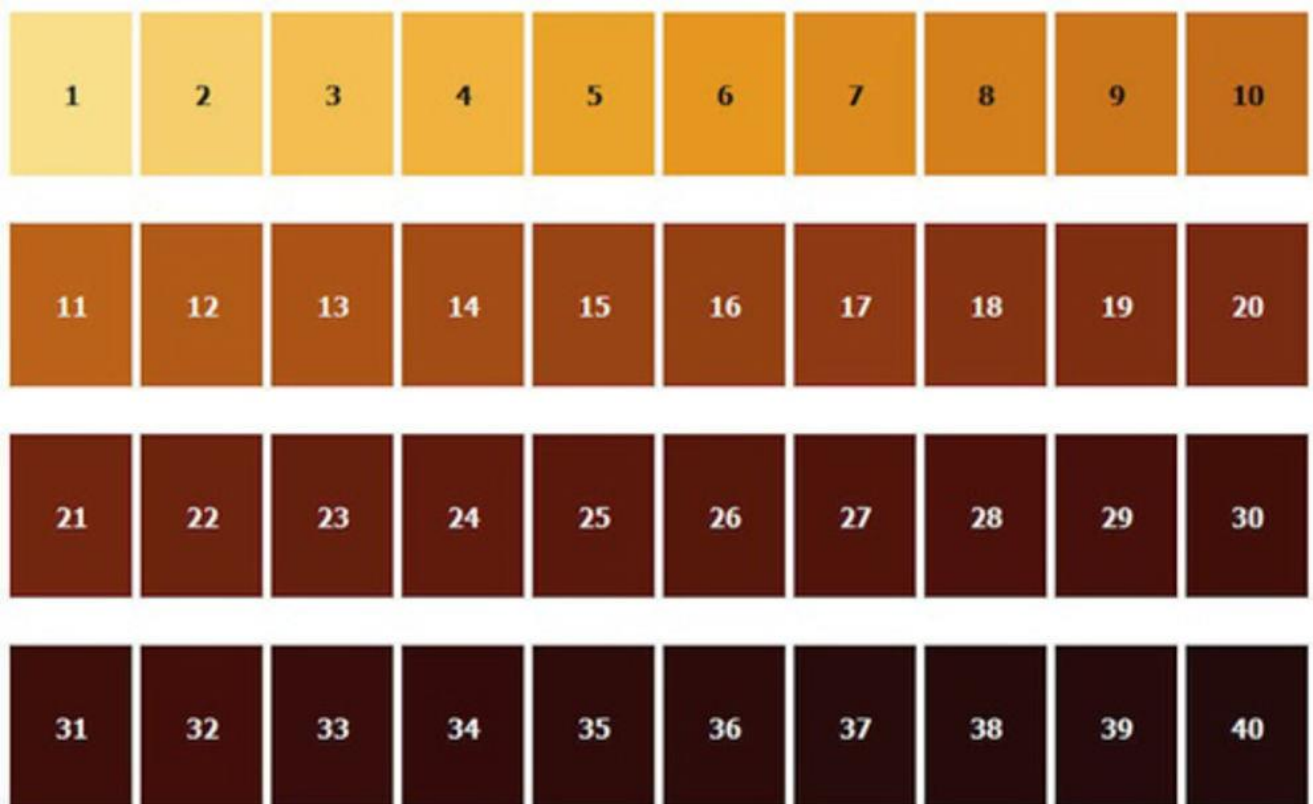
Being careful not to mix them up, remove the apple segments from their solutions.

Judge how successful each solution has been at preventing the browning, or decay, of each apple segment.

You may wish to have a numbered scale of 'brownness' such as the one below.

Can you make a record of your results and form any conclusions from the results of your investigation? Will you produce a table? Will you have a photographic record?

CAUTION: Although none of the materials you have used is in any way toxic, for reasons of hygiene DO NOT EAT the apple segments!





INVESTIGATE THE STORY

The invention of the tin can meant that food could be stored for long periods of time without losing any of its nutritional qualities. This was particularly important for sailors who spent many months at sea without access to the fresh food that would supply the necessary vitamins and minerals required for good health.

Tin doesn't rust - a really important quality, although it can (no pun intended) turn to dust below -10°C . People had been preserving food in glass jars before the can's invention, but this could smash. Tin, of course, doesn't!

Research the following questions, then present your findings in an imaginative and colourful manner.

(A 'can' has been provided if you wish to use it.)

- ❖ When and by whom was the tin can invented?
- ❖ Which members of the Royal Family gave their approval to the contents of tin cans?
- ❖ When and by whom was the first tin-opener invented?
- ❖ How were cans opened before the invention of the tin-opener?

THE TIN CAN STORY...





INVESTIGATE THE POEM

The poem. 'Tin' is a **parody** of the nursery rhyme, 'Mary had a little lamb'.

Parody:

noun

an imitation of the style of a particular writer, artist, or genre with deliberate exaggeration for comic effect.

So, here's another example:



Hey diddle, diddle
The cat did a piddle
All over the kitchen mat
The little dog laughed to see such fun
That he piddled all over the cat!

The author Roald Dahl took the idea a step further by writing poetic parodies of entire fairy stories in his book 'Revolting Rhymes'.

Try taking a favourite nursery rhyme and messing with it! Start with the original written out in front of you. Change just a little at the beginning and then see where your silliness takes you.

Alternatively, start collecting silly nursery rhymes from books and the internet. Create an anthology of parodies and make your own illustrated mini book.