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SAMPLE

SCIENCE

ADVENTURES

Digest

**The Principle
Behind The
Electric Iron**



Arts

STEAM

76

Upper Primary



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Permit No.: MCI (P) 071/12/2019

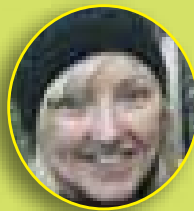
Printed in Singapore



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Editor's Note:
Shel Sweeney

WHAT is NEW in 2020! Still with a STEAM FOCUS and Much more!

English Corner Publishing is 20 years old and continues to **DELIGHT, ENGAGE** and **INSPIRE** joyful learning for children. It is Singaporean's spirit of "**PASSION MADE POSSIBLE**" that keeps us going. English Corner Publishing continues to strive with a **PASSION** to develop children's love of reading interesting and wonderful magazines, books and newspapers.

SCIENCE ADVENTURES - GOES GLOBAL - in Malaysia, Hong Kong, Ireland, China and Indonesia.

We keep abreast of the latest Global Trends and Developments, while at the same time continue to include Singapore's science syllabus - Interaction, Diversity, System, Cycle, Energy.

SCIENCE ADVENTURES covers **NESA** - Australian topics (New South Wales Education Standards Authority) and "**Science for CAMBRIDGE Primary Programme**".

Cambridge education prepares students for life, helping them develop an informed curiosity and a lasting passion for learning. Reaching 4,800 schools around the world. With GRANT assistance from Enterprise Singapore, English Corner plans to expand our science comic to the wider world, thus bringing joyful learning to a greater number of children.

We hope these insightful science comics find their way into your classrooms. Children in all parts of the world will discover that **SCIENCE IS FUN** and not just a subject taught in school.



Meet Olivia, the young naturalist who loves the earth and treasures the nature around her.

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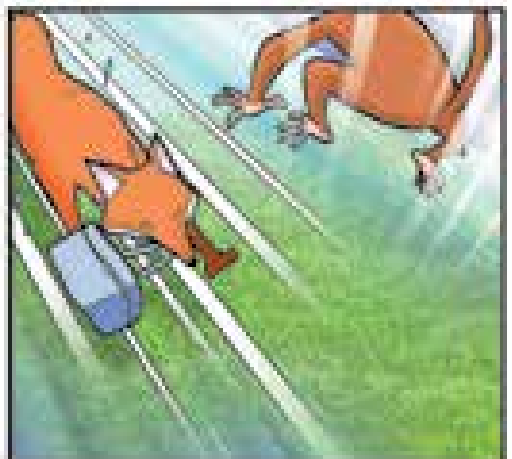
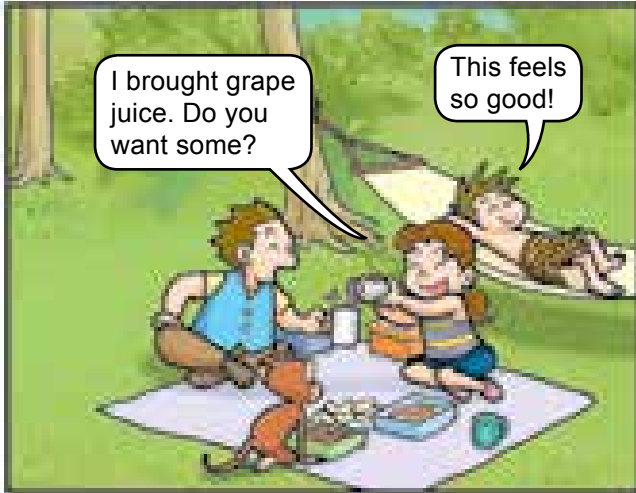
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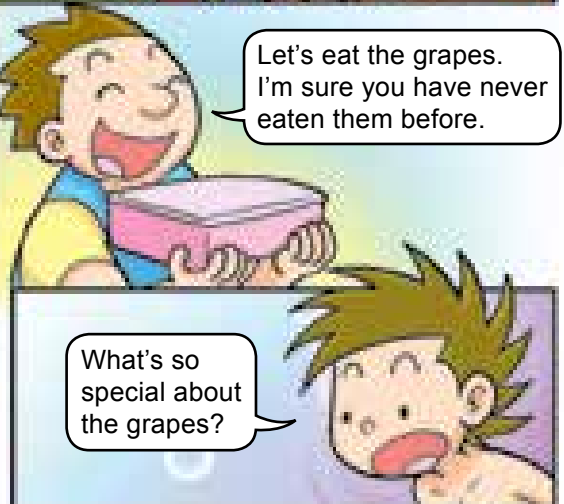
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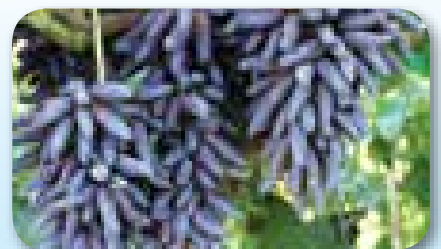
Strange-shaped Grapes



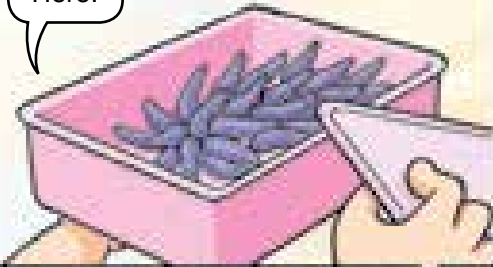


Tell Me More

Tear Drops grapes, a seedless grape, were first grown in 2002 and used to be called Chilli Pepper grapes and Witch Fingers grapes.

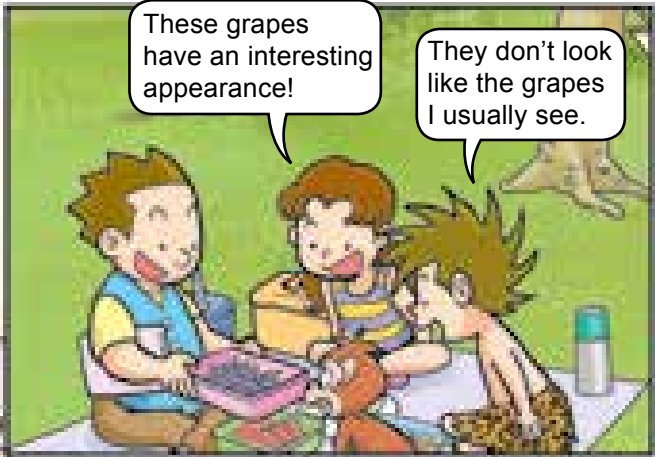


Here!

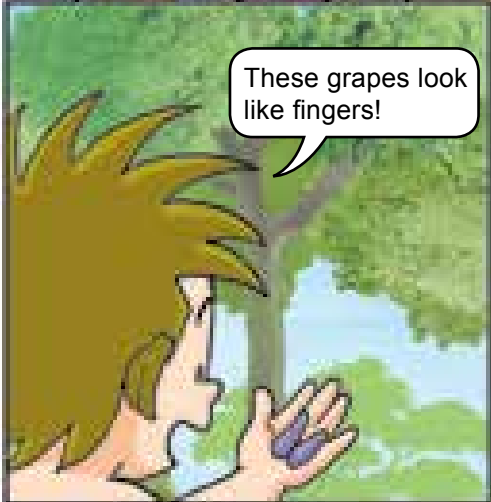


These grapes have an interesting appearance!

They don't look like the grapes I usually see.



These grapes look like fingers!



I think they look like chillies.



Fingers and peppers were once used to name this kind of grape.

Nowadays, this kind of grape has been named Tear Drops grape.



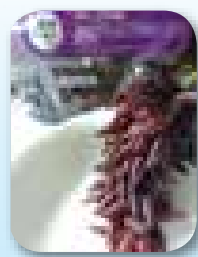
Tear Drops grapes look special but I wonder what they taste like.



Give them a try.

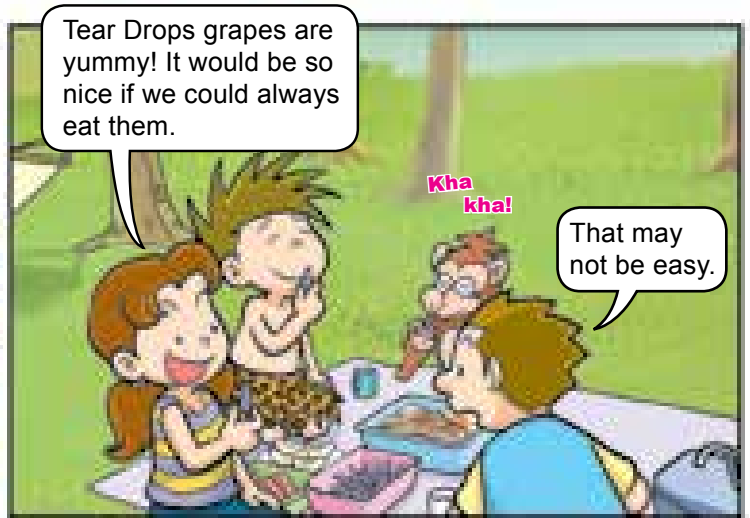
Tell Me More

Tear Drops grapes were developed by The Grapery (in Bakersfield, California) through a process of artificial hibernation in which pollen extracted from one plant was spread onto another.





It's sweet. It's even sweeter than the grape juice that I drank before.



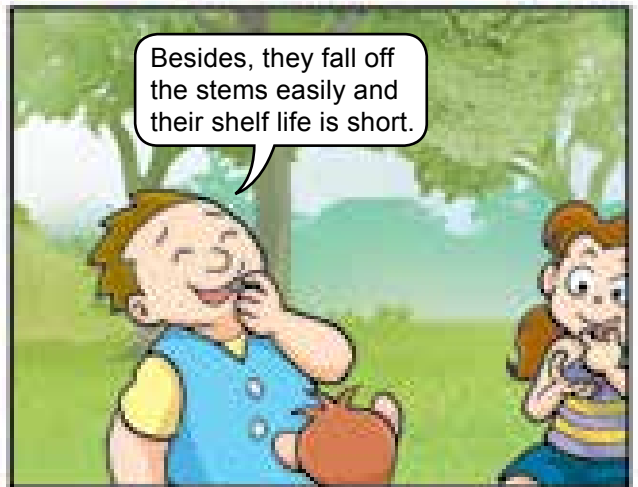
Tear Drops grapes are yummy! It would be so nice if we could always eat them.

Kha
kha!

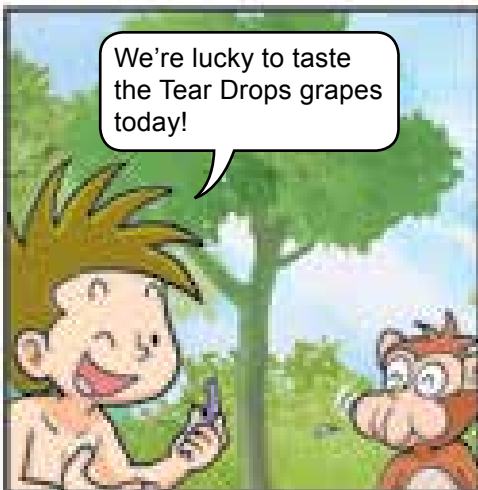
That may not be easy.



Tear Drops grapes are short-lived. They only grow in San Joaquin Valley from about July 20 to August 20.



Besides, they fall off the stems easily and their shelf life is short.



We're lucky to taste the Tear Drops grapes today!



Thanks, Bernard.

Everyone, eat to your heart's content!

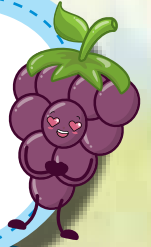
Tell Me More

The Tear Drops grape is an excellent source of vitamins A, C and K. Thus, it is a healthy fruit.



Grape

Grapes are berries that have a leathery covering and pulp inside. Grapes can be eaten fresh or used to make wine, jam, grape juice, jelly, raisins and grape seed oil.



Vines grow by coiling around nearby objects and structures. Grapes grow in clusters and can be round, ovate or elongated in shape.



There are many varieties of grapes that come in many colours including green, red, black, yellow, pink and purple.





The Miniature Horse Show



The race hasn't started yet.

I hope Aaron and his horse get a good result.



Good morning, everyone. The Miniature Horse Show is about to begin. Contestants, please enter the ring.

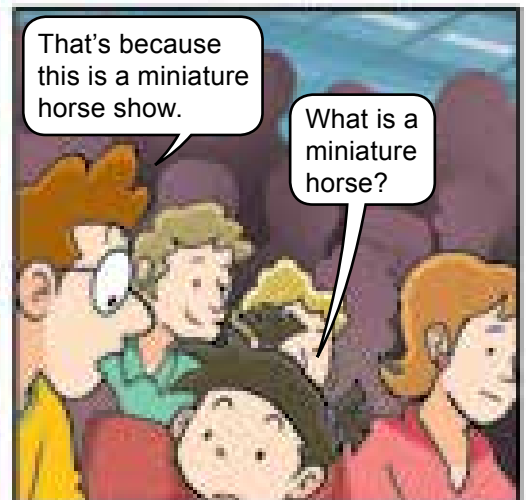


The contestants have entered the ring. There's Aaron!



Gee, why is Aaron's horse so small?

All the horses are small.



That's because this is a miniature horse show.

What is a miniature horse?

Miniature horses are short horses. These horses are usually less than 34 to 38 inches (86 to 96.5 centimetres) tall.

I see!

The hurdle race is starting now. Let's watch the show.

The hurdle jumping is so cool!

Aaron's horse is very agile!

In first place is...the Falabella of Aaron.

Aaron, congratulations.

Thanks.

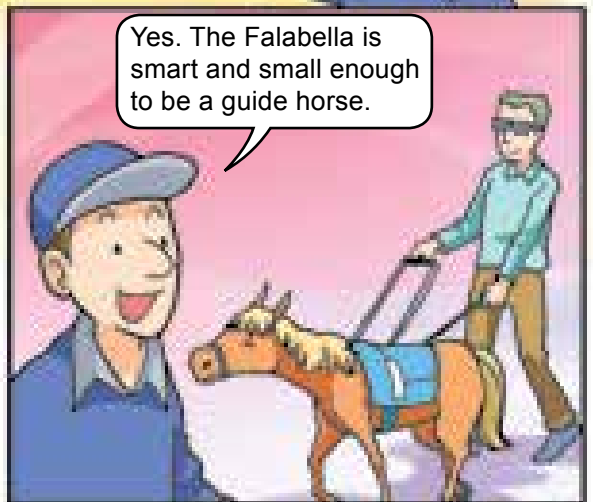
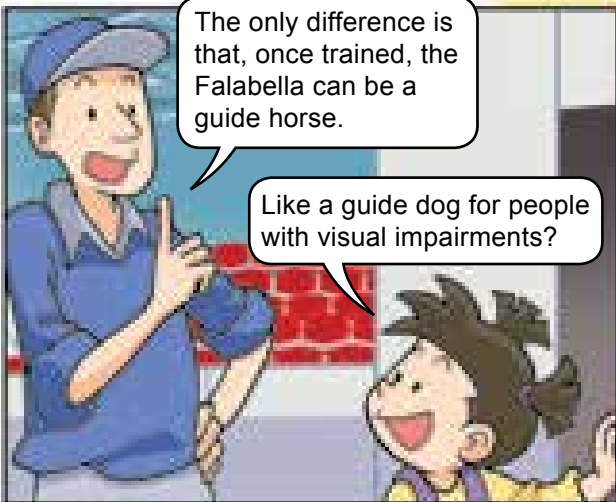
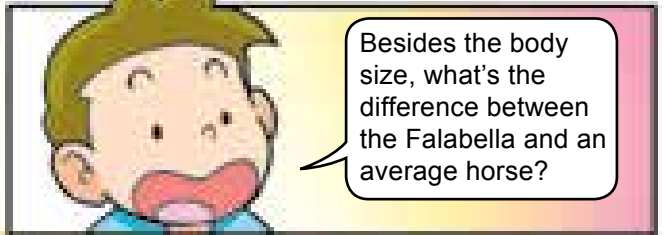
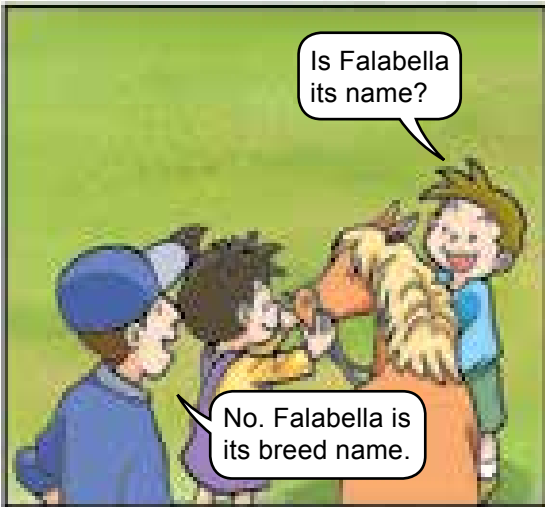
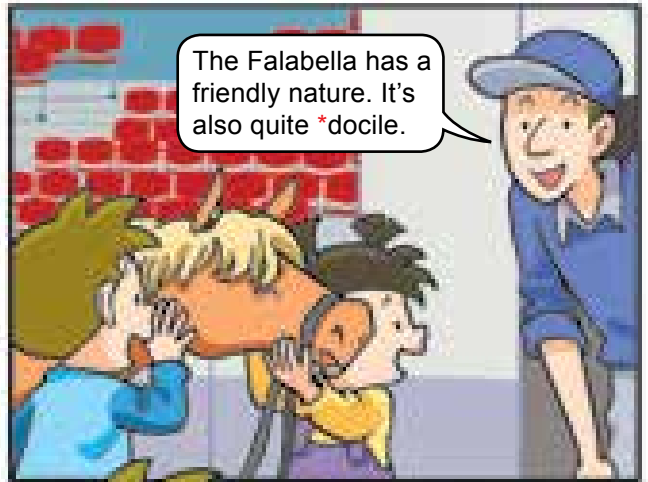
Aaron, can I touch your horse?

Of course you can.

Tell Me More

The Falabella is a miniature horse breed that is rarely taller than 32 inches (81 centimetres) in height.



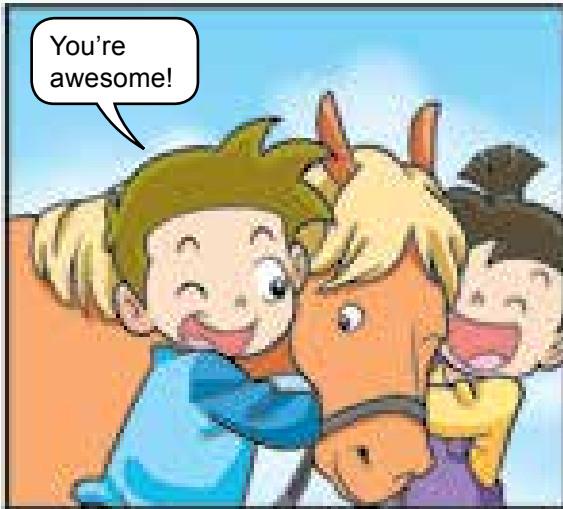


Tell Me More

Falabella miniature horses may be small but they can be quite strong and can pull small carriages.

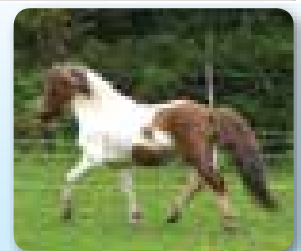


***docile:** quiet and easy to control



Tell Me More

The Falabella horse has a long life span of 40 to 45 years. The average life span of other horse breeds is around 30 years.



The Falabella Miniature Horse



In the mid-19th century, Falabella horses originated in Argentina and were first bred by Patrick Newtall. The average weight of a Falabella horse is about 70 pounds (32 kilograms), which is about the same size as a large dog.



The common colours of Falabella horses include brown, black, maroon and light brown, or a combination of these colours. Falabella horses eat the same food as other horses. Their diet includes hay, grass, grains and vegetables.



Like larger horses, they need to be groomed regularly, have their hooves cleaned and teeth taken care of in order to stay healthy.

FLOOD RESCUE

The recent days of rainfall have caused flooding in City A. The government sends a helicopter to rescue the victims and bring them to a nearby shelter.



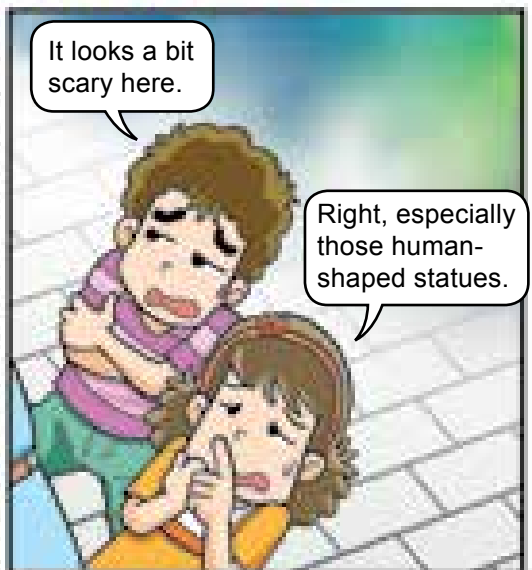
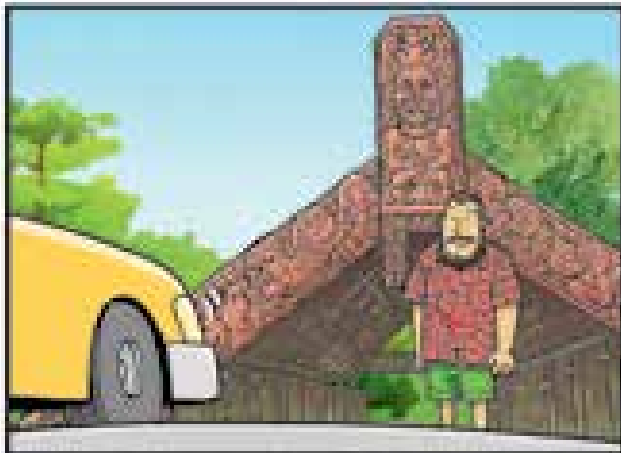


The helicopter can carry three people at a time. It begins the rescue operation at 9am and ends it at 11.30am. How long does it take the helicopter to go back and forth?

Hint Find out the number of the victims first.

Answer: 25 minutes.
There are a total of 18 victims. 18 divided by 3 equals 6. The helicopter has to make 6 trips. It has taken the helicopter 2 hours and 30 minutes, namely 150 minutes, to complete the rescue operation. 150 divided by 6 equals 25. It takes 25 minutes to go back and forth.

Whakairo





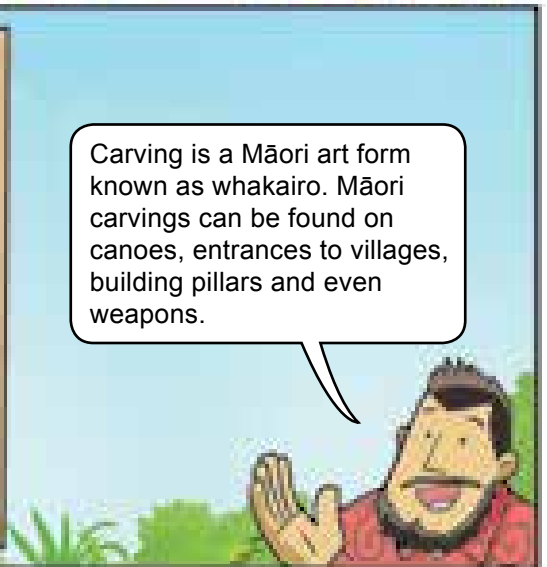
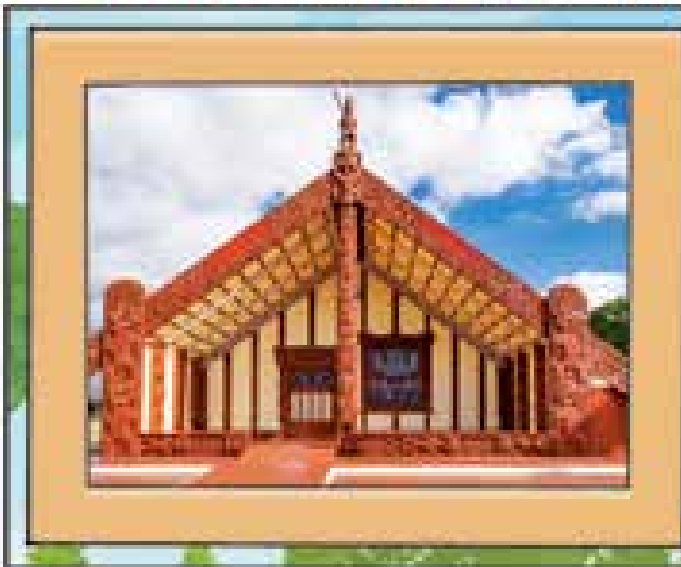
Don't be scared. These are our traditional Māori carvings.

Māori?



Māoris are the original people of New Zealand.

I see.



Carving is a Māori art form known as whakairo. Māori carvings can be found on canoes, entrances to villages, building pillars and even weapons.

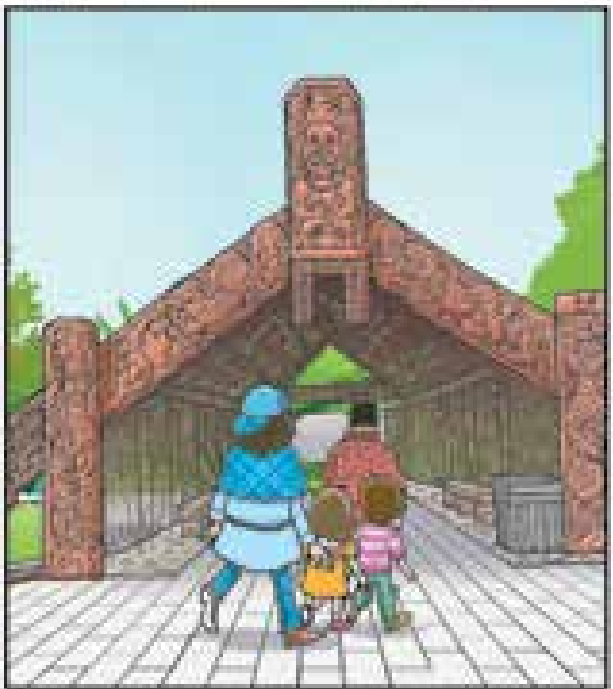


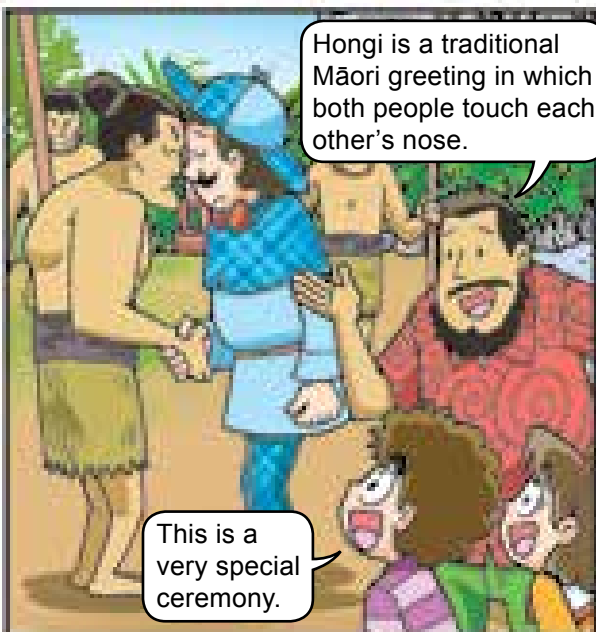
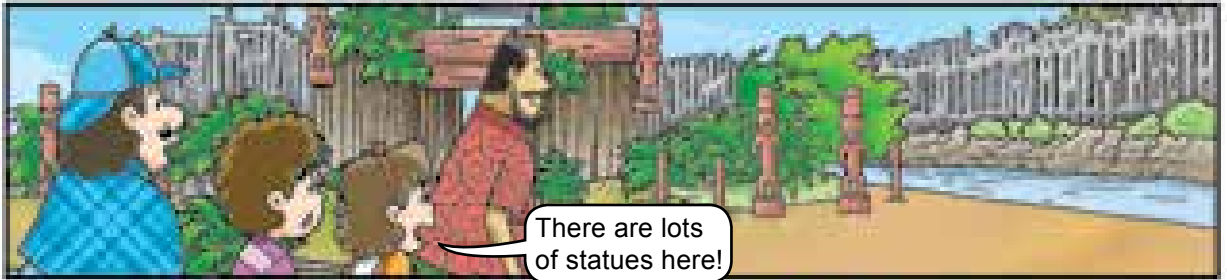
Aside from being decorative, do these exquisite carvings have any other special meaning?

Yes, they do.



In Māori culture, carving is also a way to convey information.



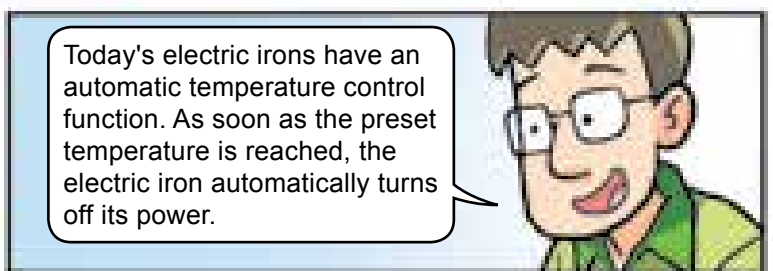
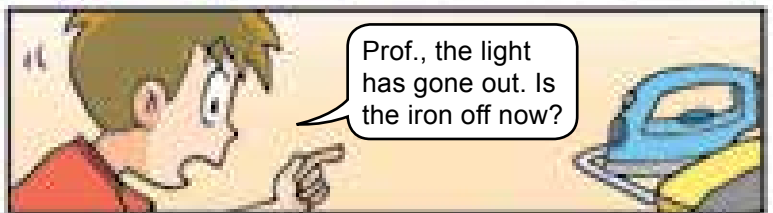
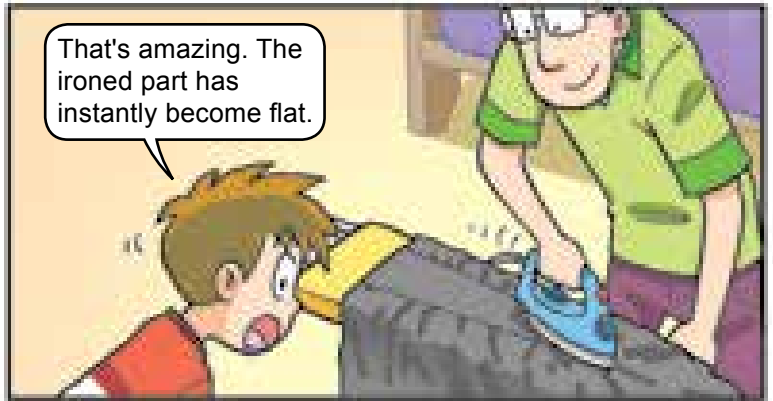


The Principle Behind The Electric Iron





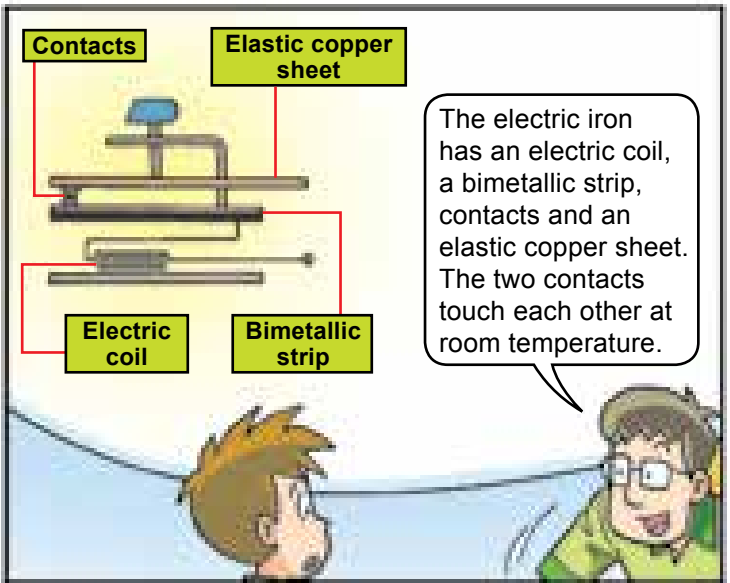
Prof. King, can you tell me what has gone wrong? I've tried many ways to make this cloak. How come it's still wrinkled?



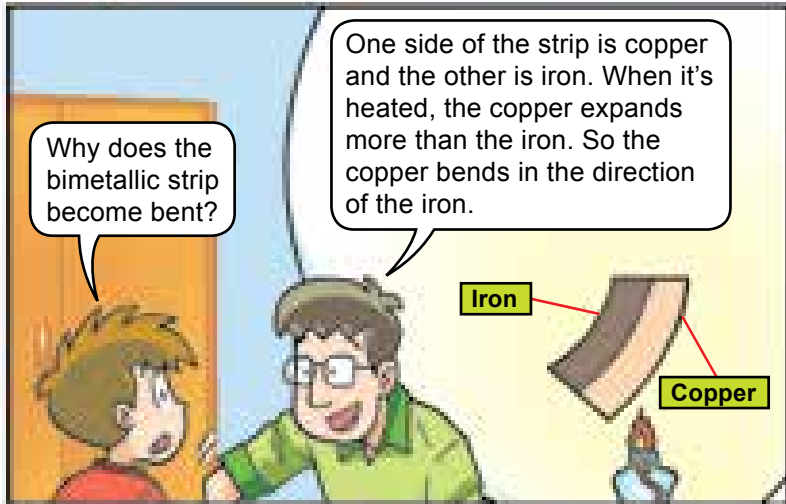
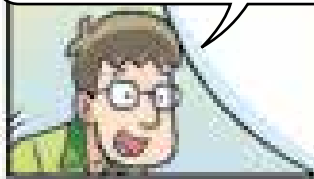
Tell Me More

In 1830, the third-generation iron was born when a blacksmith made a flat-shaped iron. Users heated the bottom with fire, then used it as soon as possible. This iron took 5 to 10 minutes to be heated enough to iron a piece of clothing.





When the current flows, the temperature of the iron rises. The higher the temperature becomes, the more the bimetallic strip bends downwards. This separates the two contacts again, cutting the power off and stopping the heating process.



Tell Me More

In 1850, the fourth-generation iron was born. This type of iron had a small compartment in which coal could be placed to keep the heat energy longer.



Silk **Raise the knob**

Clothes are made of various materials. How do you set suitable temperatures on the electric iron?

Silk requires a lower temperature. We can adjust the temperature knob upward to let the bimetallic strip bend slightly. Then the contacts will separate to lower the temperature.

Cotton and linen **Lower the knob**

For cotton and linen that need higher temperatures, lower the temperature knob and let the bimetallic strip bend at a larger scale.

My cloak!

Oh no!

Lucas, I'm sorry. It looks like you'll have to start again.

SCIENTIST AT WORK

In 1882, New-York based inventor Henry W. Seely (1854 to 1905) invented the electric iron. At the time, the electric iron was called the *Electric Flat Iron*, it weighed nearly 15 pounds (6.8 kilograms) and needed to be heated for a while before it could be used.

Tell Me More

Although irons and garment steamers are used for ironing, there are significant differences between them: they operate on very different principles, they are different in size, and electric irons are much smaller than garment steamers.



Types of Irons



Ceramic Soleplate

A ceramic plate iron refers to an electric iron whose bottom is made of aluminum or plastic with a ceramic coating. This type of electric iron has excellent heat conduction and distribution. However, ceramic plates can wear over time.



Stainless Steel Soleplate

As the name implies, the stainless steel soleplate is made of stainless steel. This type of electric iron is very durable and has excellent heat conduction and even heat distribution. However, stainless steel soleplates can damage clothing made of delicate, lightweight materials similar to silk.



Titanium Soleplate

This type of electric iron is usually made of titanium-bonded aluminum or iron alloy plates. The titanium soleplate can transfer heat quickly and is very durable and lightweight. Unfortunately, the titanium soleplate can damage fabrics due to the plate overheating. Therefore, you should be very careful when using this type of electric iron.



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