



吉娃斯 愛科學 Go Go Giwas

吉娃斯愛科學繪本

翻譯者

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繪圖者

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撒奇萊雅族語

第6集
看不見的牽絆

翻譯

台灣撒奇萊雅族協會

配音

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吉娃斯愛科學

撒奇萊雅族語版 《妲亞斯愛科學》

第六集 看不見的牽絆



族語全文朗讀



英語全文朗讀



華語全文朗讀





cayay kaadih ku libed



So Small You Can't See



看不見的牽絆





makasapud tu cacayay a lumeni'ay a
wacu ci Dayas atu ci Huyhuy.



Giwas and Behuy found a little black
puppy.



妲亞斯和飛卉撿到一隻小黑狗。





napakan tu wacu ci Huyhuy, ci “Kalu”
kya wacu. “Kalu” nu Tayan a kamu u
“tumay” han.



Behuy fed the dog and named it Nalu. In
the Atayal language, Nalu means “black
bear”.



飛卉餵小黑狗吃東西，叫小黑狗「嘎魯」。
「嘎魯」在泰雅語是「黑熊」的意思。





pataluma'an ni Dayas ci Kalu.
kalaten malepi' ku nitenunan ni ina.



Giwas brought Nalu home. Nalu chewed
some cloth that Mother had woven.



妲亞斯帶嘎魯回家。嘎魯咬壞了媽媽織
的布。





mabalucu' ci ina. abibi han tu ni
Dayas ci Kalu mulaliw.



Mother got angry, so Giwas had to
grab Nalu and run away.



媽媽生氣了。妲亞斯只好抱著嘎魯逃走。





ya tatusaay papidiput ci Kaluan. nika
makayi ci Tayin.



The two kids begged Bayan to adopt
Nalu, but he refused.



兩人拜託達映收養嘎魯，但是達映不答應。





ci Dayas atu ci Huyhuy maydih miladay ci
Kaluan tayda i sauwac paliluc. anu madimel
kya makatepa tu baluhayay a pahabayay
a tademaw.



Giwas and Behuy wanted to take Nalu to the
river for a bath. Maybe it would be easier to
find a new owner if he was clean.



妲亞斯和飛卉想帶嘎魯去河邊洗澡。也許乾淨
的樣子比較容易找到新主人。





“amana piladay ci Kaluan tayda i sauwac!”
milmil saan ci Tayin musakamu. kanca a
miala tu papah nu tali pataluma’, atalen ku
nanum nu caykeng nu heni.



“You can’t take Nalu to the riverside!”
Bayan said nervously. He told them to get
taro leaves to scoop water out of his water
basin.



「不可以帶嘎魯去河邊！」達映很緊張地
說。一定要他們摘山芋葉回來舀水甕的水。





namiala tu tamelacay a papah ci Dayas.
salangdawan, masakimulmul sa, maypabaw ku
nikaduping. ci Huyhuy han tu miala tu
mauningay a papah. u langdaway ku kulit,
tanaya sa ku papah, masadupingay sa maylabu.



Giwas picked some clean taro leaves, light
green, and round, with a shallow depression.
Behuy picked dirty leaves, dark green, and
longer with a deeper depression.



妲亞斯摘了很乾淨的葉子。粉綠色、圓圓的，凹的
地方比較淺。飛卉摘到髒髒的葉子。深綠色，葉子
比較長，凹的地方比較深。





maydih mikalat tu papah ci Kalu.
pulu en ni Tayin ci nida.



When Nalu saw the leaves, he tried
to chew on them too! Bayan stopped
him quickly.



嘎魯看到葉子就想咬。達映急忙阻止牠。





alaw u nialaan ni Huyhuy tu tabayal
u siluwakay, kanen a maleddek.



The leaves Behuy had gathered were
giant elephant's ear, which are
poisonous to eat.



原來飛卉拿的是有毒的姑婆芋葉，
吃了會中毒。





mipalita satu ci Dayas: “cacay ku
maadihay a papah a hicaen pasasiduma
miadih saw?”



“How can you tell the difference by
looking at the leaves?” Giwas asked.



「只看到其中一種葉子時要怎麼分辨呢？」
妲亞斯問。





kamu ni Tayin: “u naymicisinmaw i pabaw nu papah nu tali sa, u mamisuped tu lesing i papah, tya makapabaw mukulukulud sa.”



“The surface of the taro leaves have fine nanoscale cilia hairs that cause water droplets to collect and roll around.” Bayan said.



「山芋葉子上面的奈米級纖毛讓水聚集成水珠，在葉子上面滾來滾去。」達映說。





matenes masasuadih a tatusa, nayi' ku nika
adihan tya papahan, idaw ku banuh.
makatengil tu naymi saan, ci Huyhuy sanamuh
sa ku balucu', hakiya idaw ku asu'ay a kakanen.



The two kids looked closely, but couldn't
see the hairs. Behuy got excited when he
heard the word “nano” because he thought it
was a delicious food.



兩人看了半天，看不出葉子上有毛。聽到「奈
米」，飛卉很開心，以為是好吃的食物。





tanutawa saan ci Tayin musakamu:
“u nu tanayu’ay sausian adidi’ay han kina
naymi, caay kau mata ku makaadihay.”



Bayan laughed and said: “A nanometer is
a very, very small measurement of length,
you can’t see it with the naked eye.”



達映笑著說：「奈米是很小很小的長度單位，用眼睛是看不出來的。」





hacica ku adidi' nina naymi? sakamu sa ci Tayin:
“anu palatabaki han ku papah nu tali mahida u
kalpacawan katabaki, ya papah nu banuh a
mahida u banuh ni Kalu, adidi', apuyu' malecad
ku tanayu'.”



How small is it really? Bayan said: “If the taro
leaf was as big as the ancient battlefield, the
cilia hairs would be the size of the smallest hairs
on Nalu's body.”



奈米到底有多小？達映說：「如果把山芋葉變成像
古戰場那麼大，葉子上的纖毛就變成像嘎魯身上最
細最短的毛一樣長。」





kataneng hakiya sinmaw misuped
tu lesing saw?



Why do the cilia hairs turn water
into droplets?



為什麼纖毛可以聚集水珠呢？





anu palatabakien kya papah nu tali miadih sa,
maadih ku papah nu i pabaway, salebulebung sa.
ya masalebungay, idaw i pabaw ku tusaay a bataan
hakay limaay a bataan, hatida ku adidi' malecad
tu dinum kaadidi' nya naymi nu lacikay a tuud.



If you magnify the taro leaves, you can see that
the surface is uneven. Each protruding structure
has needle-like waxy structures 20 to 50
nanometers in size.



如果把山芋葉變很大來看，會看到葉子表面其實是
凹凸凸凸的。每個凸出的地方，上面又有20個到
50個奈米那麼小又像針一樣的蠟質東西。







caay kaydih ku nanum i nu papahay
i pabaw silacikay a tuud malamel.
nika ya naymiay mangaleb ku nanum
caay kaydih i pabaw nu papah.



Water “doesn’t like” to touch those
waxy structures.



水「不喜歡」和葉面上那些蠟質東西在
一起。可是因為「奈米」的關係，水就
更「不喜歡」貼在葉面上。





sakamu sa ci Dayas: “u adidi’ay caay
haw ku naymi? tatenga’ mahida haw?”



Giwas said: “Isn’t nano really small?
How can it have such a big impact?”



妲亞斯說：「奈米不是很小嗎？有那麼
厲害嗎？」





kamu sa ci Tayin: “i pabaw nya papah idaw aca ku masalebulebungay, idaw aca ku masatanayu’ay mahida u dinum ku silacikay a tuuday nu naymi, hamaw ya nanum atu lacikay a tuud mangaleb ku nika ahebal kayadah nisasudepitan.”



Bayan said: “All of the protruding areas on the surface are full of nanoscale waxy needle-like structures, increasing the contact area with water, so the water doesn’t like to touch the leaf 's surface.”



達映說：「葉面上每個凸出的地方上面又長滿奈米級像針一樣的蠟質東西，讓水和蠟質東西的接觸面積又更多更多了。」





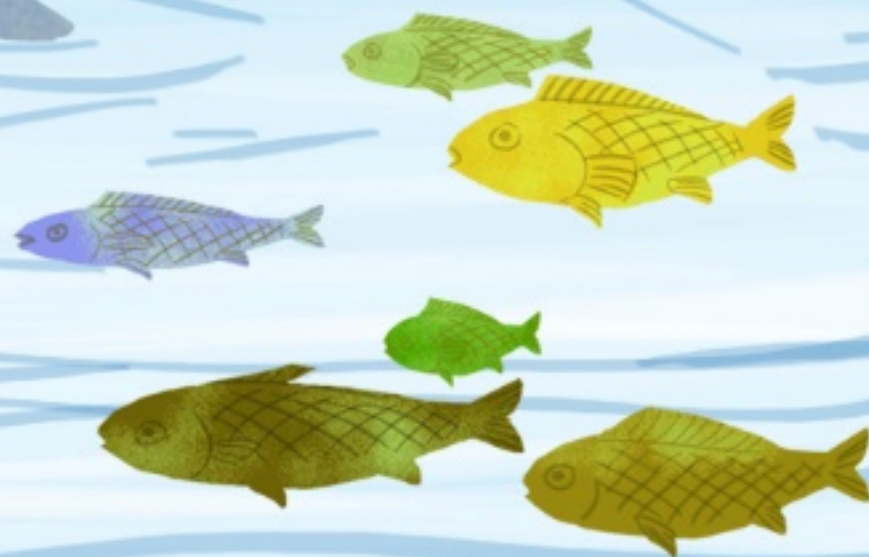
zayhan caay kanamuh kya papah, tada yadah ku lacik nu naymici malecapu masasudepit, i pabaw nu papah tada yadah ku lesing, malananum i pabaw nu papah sakulukulut sa. ya lesing makay papah mukulut tasasa, pasuuning nu papah mamin mabanaw maala, sisa tamelac satu kya papah.



Because the water doesn't like to touch the waxy structures, the water on the leaves collects into droplets and rolls around on the surface. When the droplets roll off the leaf, they bring dust and dirt with them, so the leaf becomes clean.



因為不喜歡和葉面那麼多的奈米級蠟質東西貼在一起，葉面上的水就聚集成水珠，在葉面上滾來滾去。水珠從葉面滾下時，也順便把葉面的灰塵帶走，葉面變得很乾淨。





u nika hini, saayaway i papah nu liyen mapaadih, sisa kina papahay a mahida. nu siyakay a banges mahida tu, sisa u siyakay a buting kalamkam mingaduy!



This phenomenon was first discovered on lotus leaves, so it is called the lotus effect. Shark skin has the same effect, so sharks can swim really fast!



這種現象，最早是在蓮葉上發現的，所以又叫做蓮葉效應。鯊魚皮也有同樣的效果，所以鯊魚才可以游得很快！





alaw mahiniay! lipahak amin maladay
malpadang paliluc ci Kaluan.



So that's how it works! They all
happily gave Nalu a bath.



原來如此！大家開心地一起幫嘎魯洗澡。





manamuh ci Kalu ci Tayinan atu
milimula' ci Tayinan.



Nalu really liked Bayan and
wouldn't stop playing with him.



嘎魯很喜歡達映，不停跟達映撒嬌。





madateng ni Tayin na i adidi' henay
nipahabay a wacu, mapacebu' ci Kalu
i sauwac, u matenes sikalaluman nida.



Bayan became sad because he was
reminded of a dog named Nalu he
had as a kid who fell into the river.



達映想起他小時候養的嘎魯掉進河裡，
讓他難過很久。





sakamu sa Dayas: “i nu ayaw mangaleb
ku imelang ni Nanay, malalum kaku, nika
mihaymaw midiput tu ci Nanayan!”



Giwas said: “Nainai once got really
sick and I was sad too, but I took good
care of him!”



妲亞斯說：「乃奈之前病得很重，我也
很難過，但我很仔細的照顧乃奈喔！」





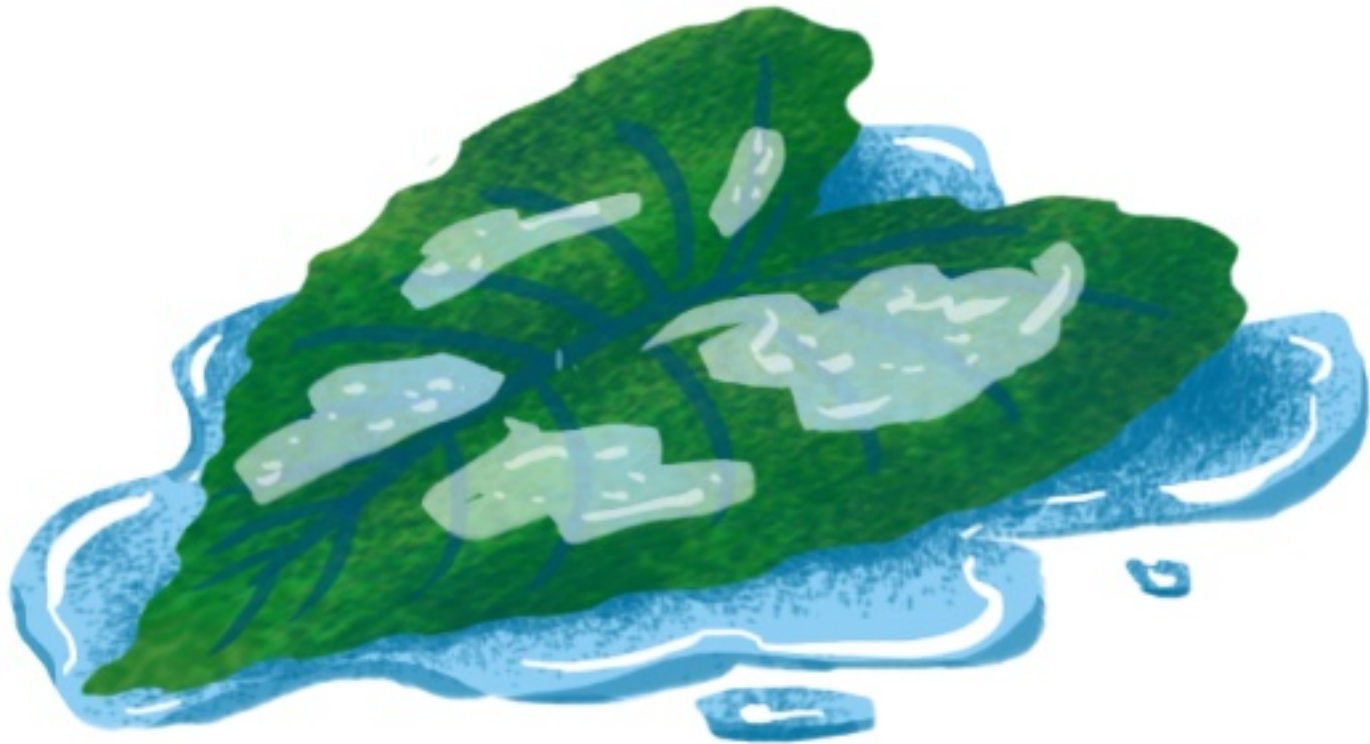
ci Tayin caay palutatenga'en tu ci Nanayan,
hakiya talkan tu la'cusay a kakanan, ci Dayas
kasenun sa, makadateng i nasanal pananuman
nida tu nilaculan nu “papah nu tali” ci Nanayan.



Bayan thought that maybe Nainai had been
poisoned, and Giwas remembered that she had
used “taro leaves” to bring him water that
morning.



達映正懷疑乃奈是吃壞肚子時，妲亞斯突然
想起早上還用「山芋葉」裝水給乃奈喝。





nika ya “papah nu tali” mahida caay
pakasuped tu lesing?



But that “taro leaf” didn’t form water
droplets.



但是那片「山芋葉」好像不會聚集水珠？





mabalucu' ci Nanay, sangaleb tu ku
ungal. alaw ci Nanay talkan tu tabayal
nu ledek!



Nainai got angry and cried out.
Apparently Nainai had been poisoned
from the elephant's ear!



乃奈很生氣，叫得更慘。原來乃奈中了
姑婆芋的毒！

《吉娃斯愛科學》- 撒奇萊雅族語版《姐亞斯愛科學》

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彙整者：嚴苡嘉、洪采薇

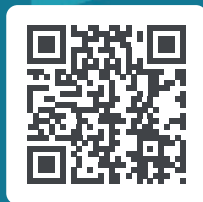
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