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day 73 genes and matter

Chinese TOCFL C in 142 days
unit 11 · science & technology

Talk about genes, matter and space at a science exhibition, and say “straight afterwards” and “in real time” with 隨即 and 即時.

Science news, product descriptions and reports lean on 隨即 and 即時, and science is a standard topic in the Band C reading test.

words

word	pinyin	meaning	example
物體	wùtǐ	object, physical body	天上有一個發光的物體，飛得非常快。 There’s a glowing object in the sky, moving incredibly fast.
基因	jīyīn	gene	她們家的人都很高，大概是基因的關係。 Everyone in her family is tall: it must be in the genes.
遺傳	yíchuán	inherit, pass on (genetically)	我的近視是遺傳我爸爸的。 I got my short sight from my dad.
體積	tǐjī	volume, size	這台新電腦的體積只有舊的一半。 This new computer is only half the size of the old one.
固體	gùtǐ	solid	水到了零度，就會變成固體。 At zero degrees, water turns solid.
進化	jìnhuà	evolve, evolution	科學家認為，人類是經過幾百萬年才進化成現在這樣的。 Scientists believe it took humans millions of years to evolve into what we are today.
氣體	qìtǐ	gas	水加熱以後，會變成氣體。 When water is heated, it turns into a gas.
液體	yètǐ	liquid	帶上飛機的液體有限制，不能帶太多。 There are limits on liquids you take on a plane: you can’t bring much.
元素	yuánsù	element	這張海報裡有很多臺灣的元素，像夜市和機車。 This poster has lots of Taiwanese elements, like night markets and scooters.
軌道	guǐdào	orbit; track	這顆衛星已經進入軌道了。 The satellite is now in orbit.
測	cè	measure, test	護士先幫我測了體溫。 The nurse took my temperature first.
即時	jíshí	in real time, immediately	這個軟體可以即時翻譯。 This software can translate in real time.
隨即	suíjí	immediately afterwards	他接到電話，隨即出門了。 He got the call and left straight away.
改良	gǎiliáng	improve (a design, a breed)	這個設計經過改良，用起來方便多了。 The design has been improved, and it’s much easier to use.
觀感	guāngǎn	impression, how something strikes you	你對這個城市的觀感怎麼樣？ What’s your impression of the city?

光輝	guānghuī	radiance, glory	月亮的光輝照在湖上，好美。 The moonlight on the lake is beautiful.
花紋	huāwén	decorative pattern	這件衣服的花紋很特別。 The pattern on this top is really unusual.
火焰	huǒyàn	flame	火焰是藍色的時候，溫度比較高。 When a flame is blue, it's hotter.
見證	jiànzhèng	witness, bear witness to	這棵老樹見證了這個城市一百年的變遷。 This old tree has witnessed a hundred years of change in the city.
精髓	jīngsuǐ	essence, the very heart of	這本書的精髓都在最後一章。 The heart of this book is all in the last chapter.
開闢	kāipì	open up (a route, a market)	他們在國外開闢了一個新的市場。 They opened up a new market abroad.
跨越	kuàyuè	cross, span, leap over	這次合作跨越了三個國家。 This partnership spans three countries.
遼闊	liáokuò	vast, boundless	站在山上，看著遼闊的大海，心情好多了。 Standing on the mountain looking out at the vast sea, I felt much better.

pattern 隨即 / 即時: right away, at once

first event, **隨即** **next event** **· 即時 + verb (as it happens)**

Both are written words for "at once". 隨即 links two events in a story: the second follows straight after the first (他接到電話，隨即出門了). 即時 means "in real time, without delay" and describes how something works or should be done: 即時翻譯, 即時新聞, 有問題請即時處理.

他看完信，隨即打了電話給律師。 **tā kàn wán xìn suíjí dǎ le diànhuà gěi lǜshī** He read the letter and immediately rang his lawyer.

地震發生以後，政府隨即派人去幫忙。 **dìzhèn fāshēng yǐhòu zhèngfǔ suíjí pài rén qù bāngmáng** Straight after the earthquake, the government sent people to help.

在這個平臺上，可以即時看到每家店的訂位。 **zài zhè ge píngtái shàng kěyǐ jíshí kàn dào měi jiā diàn de dìngwèi** On this platform you can see every shop's bookings in real time.

dialogue the story of life

teacher chen 這個展覽講的是地球上的生命怎麼一步一步進化。你們看入口這面牆，上面的花紋其實是基因的樣子。

zhè ge zhǎnlǎn jiǎng de shì dìqiú shàng de shēngmìng zěnme yí bù yí bù jìnhuà nǐmen kàn rùkǒu zhè miàn qiáng shàngmiàn de huāwén qíshí shì jīyīn de yàngzi · This exhibition is about how life on Earth evolved, step by step. Look at the wall by the entrance: the pattern on it is actually the shape of a gene.

anna 好漂亮！我還以為只是設計的元素。那台會旋轉的機器是做什麼的？

hǎo piàoliàng wǒ hái yǐwéi zhǐshì shèjì de yuánsù nà tái huì xuánzhuǎn de jīqì shì zuò shénme de · It's beautiful! I thought it was just a design element. What's that spinning machine for?

teacher chen 你站在它前面，它會即時測你的身高、拍下你的臉，再告訴你，你哪些地方是遺傳爸爸、哪些是遺傳媽媽的。

nǐ zhàn zài tā qiánmiàn tā huì jíshí cè nǐ de shēngāo pāi xià nǐ de liǎn zài gàosù nǐ nǐ nǎxiē dìfāng shì yíchuán bàba nǎxiē shì yíchuán māma de · Stand in front of it and it measures your height and photographs your face in real time, then tells you which bits of you come from your dad and which from your mum.

anna 準嗎？會不會有誤差？

zhǔn ma huì bu huì yǒu wùchā · Is it accurate? Is there a margin of error?

david 我試試看……它說我的眼睛是遺傳我媽媽的！我媽要是知道，必定很得意。

wǒ shì shi kàn tā shuō wǒ de yǎnjīng shì yíchuán wǒ māma de wǒ mā yàoshì zhīdào bìdìng hěn déyì · Let me try… it says I got my eyes from my mum! If she knew, she'd be so pleased with herself.

anna 這一部分講物質的三種狀態：固體、液體、氣體。你們看，這塊冰一放進火焰裡，隨即就變成水，再變成氣體。

zhè yí bùfen jiǎng wùzhí de sān zhǒng zhuàngtài gùtǐ yètǐ qìtǐ nǐmen kàn zhè kuài bīng yí fàng jìn huǒyàn lǐ suíjí jiù biànchéng shuǐ zài biànchéng qìtǐ · This part is about the three states of matter: solid, liquid and gas. Look: the moment this piece of ice goes into the flame it turns to water, and then to gas.

teacher chen 對。不管是什麼物體，體積都會隨著溫度改變。

duì bùguǎn shì shénme wùtǐ tǐjī dōu huì suízhe wēndù gǎibiàn · That's right. Whatever the object, its volume changes with temperature.

david 樓上是太空的部分。這張照片是軌道上的衛星即時拍的：太陽的光輝照在遼闊的海上。

lóushàng shì tàikōng de bùfen zhè zhāng zhàopiàn shì guǐdào shàng de wèixīng jíshí pāi de tàiyáng de guānghuī zhào zài liáokuò de hǎi shàng · Upstairs is the space part. This photo was taken live by a satellite in orbit: sunlight shining on the vast ocean.

teacher chen 人類能開闢太空這條路，靠的是一代一代科學家畢生的努力。一百多年前，很多人還覺得飛上天是在做夢；後來有了飛機，又有了衛星。每一次失敗，科學家都把原因記下來，下一代的人再接著做，才有今天的成果。

rénlèi néng kāipì tàikōng zhè tiáo lù kào de shì yí dài yí dài kēxué jiā bìshēng de nǔlì yìbǎi duō nián qián hěn duō rén hái juéde fēi shàng tiān shì zài zuòmèng hòulái yǒu le fēijī yòu yǒu le wèixīng měi yí cì shībài kēxué jiā dōu bǎ yuányīn jì xialai xià yí dài de rén zài jiēzhe zuò cái yǒu jīntiān de chéngguǒ · Humans opened the way to space thanks to the lifelong efforts of generation after generation of scientists. Over a hundred years ago, lots of people still thought flying was a dream; then came planes, and after them satellites. Every time something failed, the scientists wrote down why, and the next generation carried on from there: that's how we got where we are today.

anna 我們今天能看到這些，都要感謝他們不斷探索。這個展覽見證了科學的發展。我的觀感是：它的精髓就是讓大家自己動手。

wǒmen jīntiān néng kàn dào zhèxiē dōu yào gǎnxiè tāmen búduàn tànsuǒ zhè ge zhǎnlǎn jiànzhèng le kēxué de fāzhǎn wǒ de guāngǎn shì tā de jīngsuǐ jiùshì ràng dàjiā zìjǐ dòngshǒu · We owe everything we see here today to their constant exploring. This exhibition shows how science has developed. My impression is that its whole point is letting people try things for themselves.

david 而且這裡的機器均經過改良，小朋友也看得懂、會玩。

érqiě zhèlǐ de jīqì jūn jīngguò gǎiliáng xiǎopéngyǒu yě kàn de dǒng huì wán · And the machines here have all

been improved, so even kids can work them out.

write it trace the grey, then write your own

贊
zàn
support, praise

謀
móu
seek, plan



席
xí
(measure for talks, banquets)



拔
bá
pull out



扣
kòu
deduct; button up

good to know · New meaning: 努力 (work hard) is also a noun, “effort”: 大家的努力, 多年的努力, 白費努力 (wasted effort). 即時 and 及時 sound the same (jíshí). 及時 “in time, not too late” is more common in speech (及時趕到); 即時 “in real time” is the tech and news word (即時新聞).

You can talk about genes, solids, liquids and gases, describe a science exhibition, and link events with 隨即 and 即時.
Do this day interactively, with audio and games, free at **wishyou.today/learning**

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day 74 rockets and radiation

Chinese TOCFL C in 142 days
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Follow a rocket launch, talk about stars, planets and power, and use 尚 / 尚未, the written "still, not yet".

尚未 is everywhere in news and official notices (尚未確定, 尚未公布), and space and energy stories are classic reading texts.

words

word	pinyin	meaning	example
火箭	huǒjiàn	rocket	今天早上，火箭發射成功了。 The rocket was launched successfully this morning.
反射	fǎnshè	reflect (light, sound)	月亮自己不發光，是反射太陽的光。 The moon doesn't give off light itself: it reflects the sun's.
沸騰	fèiténg	boil; seethe (with excitement)	水燒到一百度就會沸騰。 Water boils at a hundred degrees.
電力	diànlì	electric power	夏天用電的人多，電力常常不夠。 In summer so many people use electricity that there often isn't enough power.
發電	fādiàn	generate electricity	這裡的太陽很大，很適合用太陽能發電。 The sun is strong here, so it's ideal for solar power.
觀測	guāncè	observe (stars, weather)	今天晚上天氣很好，很適合觀測星星。 The weather is perfect tonight for stargazing.
星座	xīngzuò	constellation; star sign	你是什麼星座的？ What's your star sign?
輻射	fúshè	radiation	手機的輻射對身體有害嗎？ Is mobile phone radiation bad for you?
腐蝕	fǔshí	corrode, eat away	海邊的空氣很容易腐蝕鐵。 Sea air corrodes iron very easily.
凝固	nínggù	solidify, set	湯放涼以後，上面的油都凝固了。 Once the soup cooled, the fat on top set.
半導體	bàndǎotǐ	semiconductor	新竹有很多半導體公司。 There are lots of semiconductor companies in Hsinchu.
行星	xíngxīng	planet	地球是一顆行星，月亮不是。 The Earth is a planet; the moon isn't.
尚	shàng	still, yet (written)	這件事尚未決定。 This hasn't been decided yet.
格局	géjú	layout; overall structure	這間房子的格局很好，每個房間都有窗戶。 This flat has a good layout: every room has a window.
觀望	guānwàng	wait and see	很多人還在觀望，不敢買房子。 Many people are still waiting to see, and don't dare buy a home.

歸納	guīnà	sum up, generalise	請把今天討論的重點歸納一下。 Please sum up the main points of today's discussion.
花樣	huāyàng	variety; tricks	這家店的早餐花樣很多。 This place has a huge variety of breakfasts.
加緊	jiājǐn	speed up, step up	離開會只剩三天，我們要加緊準備。 There are only three days left before the meeting: we need to step up our preparations.
潔白	jiébái	spotlessly white	她穿著一件潔白的襯衫。 She was wearing a spotless white shirt.
局部	júbù	partial, local, in places	明天局部地區會下雨。 There will be rain in places tomorrow.
扛	káng	carry on the shoulder	他一個人把冰箱扛上了五樓。 He carried the fridge up to the fifth floor on his own.
寬闊	kuānkuò	wide, broad	這條路很寬闊，開車很舒服。 This road is nice and wide: it's a pleasure to drive on.
靈	líng	quick, sharp; works well	小黑的鼻子很靈。 Xiaohei has a very sharp nose.

pattern 尚 / 尚未: still, not yet (written)

subject **尚** **未 / 無 / 不 / 可 + …**

尚 is the written form of 還 "still". It usually comes in fixed pairs: 尚未 = 還沒 (not yet), 尚無 = 還沒有 (there is still no), 尚不 = 還不, 尚可 = 還可以 (acceptable). 時間尚早 is "it's still early". In speech you'd say 還沒決定; in a notice or news report, 尚未決定.

火箭發射的時間尚未決定。 **huǒjiàn fāshè de shíjiān shàng wèi juédìng** The launch time hasn't been set yet.

這間房子的格局尚可，可是太老了。 **zhè jiān fángzi de géjú shàng kě kěshì tài lǎo le** The flat's layout is all right, but it's too old.

這台機器雖然被海風腐蝕了，但尚可使用。 **zhè tái jīqì suīrán bèi hǎi fēng fǔshí le dàn shàng kě shǐyòng** The machine has been corroded by the sea air, but it still works.

dialogue launch night

zhiming 阿傑，快來！網路上已經在實況轉播了，火箭再五分鐘就要發射。

Ājié kuài lái wǎnglù shàng yǐjīng zài shíkuàng zhuǎnbò le huǒjiàn zài wǔ fēnzhōng jiù yào fāshè · Ajie, quick! It's already being shown live online: the rocket launches in five minutes.

ajie 等一下，網路連線有點慢。

děng yíxià wǎnglù liánxiàn yǒudiǎn màn · Hang on, the connection's a bit slow.

anna 我帶了茶來。樓下新開的茶店花樣很多，我買了三種。第一泡給你們。

wǒ dài le chá lái lóuxià xīn kāi de chá diàn huāyàng hěn duō wǒ mǎi le sān zhǒng dì yī pào gěi nǐmen · I've brought tea. The new tea shop downstairs has loads of choice, so I got three kinds. You two get the first brew.

ajie 謝謝。你們看，上面那顆衛星是臺灣自己做的，裡面的半導體都是臺灣做的。它會觀測地球的天氣，也會測太空的輻射。

xièxie nǐmen kàn shàngmiàn nà kē wèixīng shì Táiwān zìjǐ zuò de lǐmiàn de bàndǎotǐ dōu shì Táiwān zuò de tā huì guāncè dìqiú de tiānqì yě huì cè tàikōng de fúshè · Thanks. Look: the satellite on top was made in Taiwan, semiconductors and all. It will observe the Earth's weather and measure radiation in space.

zhiming 發射了！好亮的火焰……現場的人全都沸騰了！

fāshè le hǎo liàng de huǒyàn xiànchǎng de rén quán dōu fèiténg le · Lift-off! What a flame… the whole crowd there has gone wild!

ajie 火箭用的是液體燃料。

huǒjiàn yòng de shì yètǐ ránliào · The rocket runs on liquid fuel.

anna 那些記者扛著攝影機一直跑，好辛苦。那現在成功了嗎？

nàxiē jìzhě káng zhe shèyǐngjī yìzhí pǎo hǎo xīnkǔ nà xiànzài chénggōng le ma · Those reporters are running about with cameras on their shoulders, poor things. So has it worked?

ajie 尚未確定。衛星要先進入軌道，隨即像鳥一樣張開翅膀，用太陽的光發電，大概一個小時以後才知道。以前也有過失敗的例子：火箭飛得很好，可是衛星進了軌道以後，翅膀沒有張開，地面一直聯絡不上它，好幾年的工作就白費了。所以這一個小時，對做衛星的人來說，是最緊張的時候。

shàng wèi quèdìng wèixīng yào xiān jìnrù guǐdào suíjí xiàng niǎo yíyàng zhāngkāi chìbǎng yòng tàiyáng de guāng fādiàn dàgài yí ge xiǎoshí yǐhòu cái zhīdào yǐqián yě yǒu guo shībài de lìzi huǒjiàn fēi de hěn hǎo kěshì wèixīng jìn le guǐdào yǐhòu chìbǎng méiyǒu zhāngkāi dìmiàn yìzhí liánluò bu shàng tā hǎojǐ nián de gōngzuò jiù bái fèi le suǒyǐ zhè yí ge xiǎoshí duì zuò wèixīng de rén lái shuō shì zuì jǐnzhāng de shíhòu · Not yet known. The satellite has to reach orbit first, then straight away spread its wings like a bird and start generating power from sunlight. We'll know in about an hour. It has gone wrong before: the rocket flew perfectly, but once the satellite was in orbit its wings never opened, the ground could never get in touch with it, and years of work were wasted. So for the people who build satellites, this hour is the most nerve-racking of all.

zhiming 不管怎樣，我們見證了臺灣的一大步。對了，你那個大學同學是不是也在做半導體？

bùguǎn zěn yàng wǒmen jiànzhèng le Táiwān de yí dà bù duìle nǐ nà ge dàxué tóngxué shì bu shì yě zài zuò bàndǎotǐ · Either way, we've just witnessed a big step for Taiwan. By the way, doesn't that university friend of yours work in semiconductors too?

ajie 對，他在新竹上班。他們公司下個月有一天開放參觀，問我們要不要去。進工廠要穿潔白的衣服，很好玩。

duì tā zài Xīnzhú shàngbān tāmen gōngsī xià ge yuè yǒu yì tiān kāifàng cānguān wèn wǒmen yào bu yào qù jìn gōngchǎng yào chuān jiébái de yīfú hěn hǎo wán · Yes, he works in Hsinchu. His company has an open day next month and he asked if we want to come. You have to wear spotless white suits to go into the factory: it's fun.

anna 我要去！大衛一定也想去，美玲大概還會觀望一下。那天晚上天氣好的話，我們還可以在山上看星星，聽說看得到行星。

wǒ yào qù! Dàwèi yídìng yě xiǎng qù Měilíng dàgài hái huì guānwàng yíxià nà tiān wǎnshàng tiānqì hǎo dehuà wǒmen hái kěyǐ zài shān shàng kàn xīngxing tīngshuō kàn de dào xíngxīng · I'm in! David will want to come too; Meiling will probably wait and see. If the weather's good that night we can watch the stars in the hills: apparently you can see the planets.

zhiming 你又要跟我們講星座了。好，我歸納一下：下個月去新竹，大家都去，阿傑負責問時間。

nǐ yòu yào gēn wǒmen jiǎng xīngzuò le hǎo wǒ guīnà yíxià xià ge yuè qù Xīnzhú dàjiā dōu qù Ājié fùzé wèn shíjiān · You're going to lecture us on constellations again. OK, let me sum up: next month, Hsinchu, everyone's going, and Ajie will find out the date.

write it trace the grey, then write your own

召 zhào summon

績 jī achievement

署 shǔ put one's name to

核 hé check

徵 zhēng call for, recruit

good to know · New meaning: 泡 (soak, brew) is also a measure word for a brew of tea: 第一泡, 這泡茶. Taiwanese oolong is often steeped several times, and many say the second brew is the best. Weather forecasts love written words: 局部地區有雨 (local showers), 氣溫尚可 (temperatures are fine).

You can follow a launch, talk about stars, planets and power, and write news with 尚未 and 隨即.
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day 75 in the lab

Talk about lab tests, samples and materials, and say what someone or something has always done with 歷來, 一貫 and 向來.

Company reports, product pages and profiles of people constantly say what has “always” been true, and lab and product vocabulary is common in Band C reading.

words

word	pinyin	meaning	example
抽樣	chōuyàng	take a sample, sample	我們抽樣調查了一千個|人。 We surveyed a sample of a thousand people.
纖維	xiānwéi	fibre	多吃蔬菜，可以吃到很多纖維。 Eat more vegetables and you’ll get plenty of fibre.
直徑	zhíjìng	diameter	這個盤子的直徑是三十公分。 This plate is thirty centimetres across.
分子	fēnzǐ	molecule	水|分子非常小，眼睛看不|見。 Water molecules are far too small to see.
核子	hézǐ	nucleus; nuclear	他是研究核子物理的科學家。 He’s a scientist working in nuclear physics.
凝結	níngjié	condense; congeal	冬天的早上，車窗上凝結了一層水。 On winter mornings, a film of water condenses on the car windows.
振動	zhèndòng	vibrate	洗衣機一直在振動，聲音好大。 The washing machine keeps shaking, and it’s so loud.
蒸發	zhēngfā	evaporate	天氣太熱，地上的水很快就蒸發了。 It was so hot that the water on the ground evaporated in no time.
分解	fēnjiě	break down, decompose	塑膠袋要幾百年才能分解。 Plastic bags take hundreds of years to break down.
解剖	jiěpǒu	dissect	學醫的學生都要上解剖課。 Medical students all have to take anatomy classes.
鈣	gài	calcium	牛奶裡有很多鈣。 Milk has lots of calcium.
一貫	yīguàn	consistent, all along	準時是我們公司一貫的要求。 Punctuality has always been our company’s rule.
革新	géxīn	innovate, reform	這家老店也需要革新。 Even this old shop needs to innovate.
關頭	guāntóu	critical moment	在最後關頭，他終於想出了辦法。 At the last moment, he finally came up with a solution.
過關	guòguān	pass (a test), get through	這次的檢查，大家都順利過關了。 Everyone got through the inspection smoothly this time.

荒唐	huāngtáng	absurd, ridiculous	這種說法太荒唐了，誰會相信？ That claim is ridiculous: who would believe it?
夾雜	jiázá	be mixed with	他說中文的時候，常常夾雜一些英文。 When he speaks Chinese, he often mixes in some English.
解體	jiětǐ	fall apart, break up	那個團隊幾年前就解體了。 That team broke up years ago.
抉擇	juézé	(hard) choice	工作還是家庭？這是一個很難的抉擇。 Work or family? That's a really hard choice.
可觀	kěguān	considerable, impressive	這個月的收入相當可觀。 This month's income is pretty impressive.
捆	kǔn	tie up, bundle	他把舊報紙捆起來，拿去回收。 He tied up the old newspapers and took them to recycling.
領會	lǐnghuì	grasp, understand	我終於領會了老師的意思。 I finally understood what the teacher meant.
歷來	lìlái	always, throughout history	這家店歷來只用本地的材料。 This shop has always used only local ingredients.

pattern 歷來 / 一貫 / 向來: always, all along

subject | 歷來 / 向來 | verb phrase | ·一貫的 + noun

All three say something has been true from the past until now. 向來 is the everyday one (他向來很準時). 歷來 is more formal and looks back over a long history, often of a place or an institution (這家店歷來只用本地的材料). 一貫 is an adjective, "consistent": 一貫的態度, 一貫的做法; it can also stand before a verb (他一貫反對).

這家公司歷來重視員工的健康。 **zhè jiā gōngsī lìlái zhòngshì yuángōng de jiànkāng** This company has always cared about its staff's health.

他一貫的做法是先聽，再說。 **tā yíguàn de zuòfǎ shì xiān tīng zàishuō** His way has always been to listen first and speak later.

他向來很準時，今天怎麼還沒來？ **tā xiànglái hěn zhǔnshí jīntiān zěnme hái méi lái** He's always on time: why isn't he here yet today?

dialogue a box that disappears

meiling 安娜，歡迎來我們的研究中心！你們設計的盒子，是用植物纖維做的。丟掉以後，幾個月就會分解。

Ānnà huānyíng lái wǒmen de yánjiù zhōngxīn nǐmen shèjì de hézi shì yòng zhíwù xiānwéi zuò de diū diào yǐhòu jǐ ge yuè jiù huì fēnjiě · Anna, welcome to our research centre! The box your team designed is made of plant fibre. Once you throw it away, it breaks down in a few months.

anna 真的嗎？這裡好乾淨，大家都穿著潔白的衣服。你們公司向來很重視環保吧？

zhēnde ma zhèlǐ hǎo gānjìng dàjiā dōu chuān zhe jiébái de yīfú nǐmen gōngsī xiànglái hěn zhòngshì huánbǎo ba · Really? It's so clean here, and everyone's in spotless white. Your company has always cared about the environment, right?

meiling 對，這是我們一貫的態度。每一批產品，我們都會抽樣檢查，一律要過關才能上市。

duì zhè shì wǒmen yíguàn de tàidù měi yì pī chǎnpǐn wǒmen dōu huì chōuyàng jiǎnchá yílǜ yào guòguān cáinéng shàngshì · Yes, it's always been our position. We test samples from every batch, and every one has to pass before it goes on sale.

anna 那台機器一直在振動，是在做什麼？

nà tái jīqì yìzhí zài zhèndòng shì zài zuò shénme · That machine keeps vibrating: what's it doing?

meiling 在把材料混在一起。你看這個瓶子，直徑只有三公分。天氣冷的時候，蓋子上會凝結一層水，裡面的水分也會蒸發，所以蓋子是特地設計的。

zài bǎ cáiliào hùn zài yìqǐ nǐ kàn zhè ge píngzi zhíjìng zhǐyǒu sān gōngfēn tiānqì lěng de shíhòu gàizi shàng huì níngjié yì céng shuǐ lǐmiàn de shuǐfèn yě huì zhēngfā suǒyǐ gàizi shì tèdì shèjì de · Mixing the ingredients. Look at this bottle: it's only three centimetres across. When it's cold, a film of water condenses on the lid and the moisture inside evaporates, so the lid was specially designed.

anna 你們連蓋子都要改良，真細心。我聽說，你們老闆要全盤革新包裝，以後一概不用塑膠？

nǐmen lián gàizi dōu yào gǎiliáng zhēn xìxīn wǒ tīngshuō nǐmen lǎobǎn yào quánpán géxīn bāozhuāng yǐhòu yígài bú yòng sùjiāo · You even improve the lids: so thorough. I hear your boss wants to overhaul all the packaging and stop using plastic altogether?

meiling 對。可是一開始，有人說只用紙太荒唐了，團隊差點解體。到了最後關頭，老闆做了一個抉擇：只用紙。

duì kěshì yì kāishǐ yǒu rén shuō zhǐ yòng zhǐ tài huāngtáng le tuánduì chàdiǎn jiětǐ dào le zuìhòu guāntóu lǎobǎn zuò le yí ge juézé zhǐ yòng zhǐ · Yes. But at first some people said paper only was ridiculous, and the team nearly fell apart. At the last moment, the boss made his choice: paper only.

anna 那成本呢？紙比塑膠貴吧？

nà chéngběn ne zhǐ bǐ sùjiāo guì ba · And the cost? Paper's dearer than plastic, isn't it?

meiling 成本尚未算好，不過目前的訂單相當可觀。老闆說，現在多花一點錢，以後就不用花更多的錢處理垃圾。而且年輕的客人很在乎這些事，他們買東西以前，都會先看包裝是用什麼做的。這次，我們終於配得上「環保」這兩個字了。

chéngběn shàng wèi suàn hǎo búguò mùqián de dìng dān xiāngdāng kěguān lǎobǎn shuō xiànzài duō huā yìdiǎn qián yǐhòu jiù búyòng huā gèng duō de qián chǔlǐ lèsè érqiě niánqīng de kèrén hěn zàihū zhèxiē shì tāmen mǎi dōngxi yǐqián dōu huì xiān kàn bāozhuāng shì yòng shénme zuò de zhè cì wǒmen zhōngyú pèi de shàng huánbǎo zhè liǎng ge zì le · We haven't finished working out the cost, but the orders so far are pretty impressive. The boss says spending a bit more now means not spending even more on dealing with rubbish later. And young customers care about this: before they buy anything, they check what the packaging is made of. This time we really live up to the word "green".

anna 太好了！那我們要加緊設計下一款了。

tài hǎo le nà wǒmen yào jiājǐn shèjì xià yì kuǎn le · Brilliant! Then we'd better speed up on the next design.

write it trace the grey, then write your own

遷
qiān
move (home, offices)



徒
tú
follower, pupil

組
zǔ
group, set (measure word)

財
cái
wealth

漲
zhǎng
rise, go up

good to know · New meaning: 配 (match, go with) also means “be worthy of, deserve”: 配得上 (live up to), 他不配當老師 (he doesn’t deserve to be a teacher). Use it kindly! 向來 is the safe choice in speech; 歷來 sounds like a company history or a news report.

You can talk about lab tests and materials, explain what a company has always done, and use 歷來, 一貫 and 向來 with confidence.
Do this day interactively, with audio and games, free at **wishyou.today/learning**

wishyou.today learning

day 76 comets and currents

Chinese TOCFL C in 142 days
unit 11 · science & technology

Talk about comets, steam and electricity, plan ahead with 屆時 and 及早, and describe gradual change with 逐步, 逐一 and 逐年.

Notices and plans say 屆時 (by then) and 及早 (early), and reports describe change 逐步 or 逐年: you will meet all of them in Band C reading.

words

word	pinyin	meaning	example
流星	liúxīng	shooting star, meteor	看到流星的時候，要趕快許願。 When you see a shooting star, quick, make a wish.
取樣	qǔyàng	sample, sampling	這次的取樣太少，結果不一定準。 The sample was too small this time, so the results may not be accurate.
錫	xí	tin	奶奶的老茶葉盒是錫做的。 Grandma's old tea caddy is made of tin.
星辰	xīngchén	the stars (literary)	山上的晚上，滿天星辰。 At night in the mountains, the sky is full of stars.
蒸氣	zhēngqì	steam	浴室裡都是蒸氣，鏡子看不|清楚。 The bathroom is full of steam: you can't see a thing in the mirror.
電流	diànliú	electric current	電流太大，燈就壞了。 The current was too strong, so the light blew.
電壓	diànyā	voltage	國外的電壓不一樣，電器不一定能用。 The voltage is different abroad, so your appliances may not work.
彗星	huìxīng	comet	這顆彗星每七十六年才出現一次。 This comet only appears once every seventy-six years.
逐步	zhúbù	step by step, gradually	政府會逐步提高最低工資。 The government will raise the minimum wage step by step.
及早	jízǎo	as early as possible	身體不舒服，要及早看醫生。 If you're not feeling well, see a doctor sooner rather than later.
屆時	jièshí	by then, when the time comes	展覽下週五開始，屆時歡迎大家來參觀。 The exhibition opens next Friday, and everyone is welcome to come and visit then.
功利	gōnglì	utilitarian, out for gain	現在的教育太功利了，只看分數。 Education today is too results-driven: all that matters is marks.
灌	guàn	pour into, fill	他把熱水灌進瓶子裡。 He poured hot water into the bottle.
轟動	hōngdòng	sensational, cause a stir	這部電影當年在臺灣非常轟動。 That film was a huge sensation in Taiwan back then.

輝煌	huīhuáng	brilliant, glorious	這家公司有過很輝煌的歷史。 This company has a glorious history.
尖端	jiānduān	cutting-edge	這是全世界最尖端的科技。 This is the most cutting-edge technology in the world.
精	jīng	shrewd; skilled in	這個人很精，從來不吃虧。 He's very shrewd: he never comes off worse.
均衡	jūnhéng	balanced	飲食要均衡，不要只吃肉。 Keep your diet balanced: don't just eat meat.
孔	kǒng	hole, opening	牆上有一個小孔，可以看到外面。 There's a small hole in the wall you can see out of.
擴散	kuòsàn	spread, diffuse	消息很快就擴散到整個公司。 The news quickly spread through the whole company.
領悟	lǐngwù	come to realise	經過這件事，他領悟到健康最重要。 After that, he realised that health is what matters most.
逐	zhú	one by one; chase	老師逐一檢查大家的作業。 The teacher checked everyone's homework one by one.

pattern 屆時 / 及早: by then; as early as possible · 逐步 / 逐一 / 逐年: step by step

a set time, **屆時** **what will happen** **· 及早 / 逐步 + verb**

屆時 points back to a time already named: "when that time comes" (會議兩點開始，屆時請準時出席). 及早 is "early, while there's still time" (及早準備, 及早看醫生). 逐 means "one after another": 逐步 step by step, 逐一 one by one, 逐年 year by year, 逐漸 gradually. All of them are at home in plans, notices and reports.

會議下午兩點開始，屆時請準時出席。 **huìyì xiàwǔ liǎng diǎn kāishǐ jièshí qǐng zhǔnshí chūxí** The meeting starts at two; please be on time.

有問題要及早說，別等到最後。 **yǒu wèntí yào jízǎo shuō bié děngdào zuìhòu** If there's a problem, say so early: don't wait till the end.

我們會逐步把舊的電線換掉。 **wǒmen huì zhúbù bǎ jiù de diànxiàn huàn diào** We'll replace the old wiring step by step.

來參觀的人逐年增加。 **lái cānguān de rén zhú nián zēngjiā** The number of visitors grows year by year.

dialogue comet news

david 王阿姨，你看這個新聞：下個月有一顆彗星會經過，屆時在臺灣也看得到！這個消息很快就在網路上擴散開來了。

Wáng āyí nǐ kàn zhè ge xīnwén xià ge yuè yǒu yì kē huìxīng huì jīngguò jièshí zài Táiwān yě kàn de dào zhè ge xiāoxí hěn kuài jiù zài wǎnglù shàng kuòsàn kāi lái le · Auntie Wang, look at this: a comet is passing next month, and you'll be able to see it from Taiwan! The news has spread all over the internet in no time.

auntie wang 彗星？我小時候看過一次，當年非常轟動。大家還說，看到流星要趕快許願。

huìxīng wǒ xiǎo shíhòu kàn guo yí cì dāngnián fēicháng hōngdòng dàjiā hái shuō kàn dào liúxīng yào gǎnkuài xǔyuàn · A comet? I saw one as a girl: it caused a huge stir back then. People also said that when you see a shooting star, you have to make a wish quick.

anna 新聞說，那幾天在新竹的山上看得最清楚。我們剛好要去新竹！得及早找住的地方。

xīnwén shuō nà jǐ tiān zài Xīnzhú de shān shàng kàn de zuì qīngchǔ wǒmen gānghǎo yào qù Xīnzhú děi jízǎo zhǎo zhù de dìfāng · The news says it'll be clearest from the hills around Hsinchu. We're going to Hsinchu anyway! We'd better book somewhere to stay early.

david 對，眼看就要放假了，旅館統統會客滿。

duì yǎnkàn jiù yào fàngjià le lǚguǎn tǒngtǒng huì kèmǎn · Yes, the holidays are almost here, and every hotel will be full.

auntie wang 哎呀，又跳電了！你們看，蒸氣從這個小孔一直跑出來，這台蒸包子的機器一開，電流太大，整間店就沒電了。

āiyā yòu tiào diàn le nǐmen kàn zhēngqì cóng zhè ge xiǎo kǒng yìzhí pǎo chū lái zhè tái zhēng bāozi de jīqì yì kāi diànliú tài dà zhěng jiān diàn jiù méi diàn le · Oh no, the power's tripped again! Look, steam keeps pouring out of this little hole: every time I turn on the bun steamer, the current's too much and the whole shop loses power.

anna 是不是電力不夠？還是電壓的問題？阿姨，你何必每次都自己修？找人來看看嘛。

shì bu shì diànlì bú gòu háishì diànyā de wèntí āyí nǐ hébì měi cì dōu zìjǐ xiū zhǎo rén lái kànkan ma · Is there not enough power? Or is it the voltage? Auntie, why do you always fix it yourself? Get someone in to look at it.

auntie wang 他們說店裡的電線太老，要逐步換新的。我怕被人占便宜，試圖自己修，省一點錢，結果更麻煩。上個月我自己爬上去換了一條，整條街都停電了半個小時，隔壁的老闆還跑來問我是怎麼回事。我真不好意思，現在什麼都不敢碰了。

tāmen shuō diàn lǐ de diànxiàn tài lǎo yào zhúbù huàn xīn de wǒ pà bèi rén zhàn piányí shìtú zìjǐ xiū shěng yìdiǎn qián jiéguǒ gèng máfan shàng ge yuè wǒ zìjǐ pá shàng qù huàn le yì tiáo zhěng tiáo jiē dōu tíng diàn le bàn ge xiǎoshí gébì de lǎobǎn hái pǎo lái wèn wǒ shì zěnme huíshì wǒ zhēn bùhǎoyìsi xiànzài shénme dōu bù gǎn pèng le · They say the wiring in the shop is too old and needs replacing bit by bit. I was afraid of being ripped off, so I tried to fix it myself and save a little money, and it only made things worse. Last month I climbed up and changed a wire myself, and the whole street lost power for half an hour: the owner next door even came running to ask what was going on. I was so embarrassed that now I don't dare touch anything.

david 電線太舊，萬一燒起來就來不及補救了。我認識一個工程師，對電很精。他們公司有很尖端的設備，可以逐一檢查每條電線。

diànxiàn tài jiù wànyī shāo qǐlai jiù láibùjí bǔjiù le wǒ rènshì yí ge gōngchéngshī duì diàn hěn jīng tāmen gōngsī yǒu hěn jiānduān de shèbèi kěyǐ zhú yī jiǎnchá měi tiáo diànxiàn · With wiring that old, if it catches fire it'll be too late to put right. I know an engineer who really knows his stuff about electrics. His company has cutting-edge equipment that can check every wire one by one.

auntie wang 好啊。這家店歷來都是我自己顧。現在的人太功利，什麼都看錢；我只想每天把熱豆漿灌進瓶子裡，賣給大家喝。

hǎo a zhè jiā diàn lìlái dōu shì wǒ zìjǐ gù xiànzài de rén tài gōnglì shénme dōu kàn qián wǒ zhǐ xiǎng měi tiān bǎ rè dòujiāng guàn jìn píngzi lǐ mài gěi dàjiā hē · All right. I've always run this shop by myself. People today are too focused on money; all I want is to pour hot soy milk into bottles every day and sell it to everyone.

david 阿姨一貫是這樣，只想把東西做好。

āyí yíguàn shì zhèyàng zhǐ xiǎng bǎ dōngxi zuò hǎo · Auntie's always been like that: all she wants is to do things well.

anna 阿姨，你這家店也有輝煌的歷史啊！早餐營養又均衡，難怪三十年了，客人還是這麼多。

āyí nǐ zhè jiā diàn yě yǒu huīhuáng de lìshǐ a zǎocān yíngyǎng yòu jūnhéng nánguài sānshí nián le kèrén háishì zhème duō · Auntie, your shop has a glorious history too! Your breakfasts are nutritious and balanced: no wonder you've still got so many customers after thirty years.

write it trace the grey, then write your own

漁 yú fishing

營 yíng run, operate



券 quàn ticket, bond



抵 dǐ arrive (written); make up for



微 wéi tiny

good to know · New meaning: 便宜 (cheap) is also a noun, "an advantage, a gain": 占便宜 (take advantage, get something for nothing), 別讓人占了你的便宜. Note the standard spelling 占 (佔 is common too). 跳電 (literally "the power jumps") is the everyday Taiwan word for a tripped circuit breaker.

You can talk about comets and electricity, make plans with 屆時 and 及早, and describe change step by step with 逐步, 逐一 and 逐年.
Do this day interactively, with audio and games, free at **wishyou.today/learning**

day 77 atoms and ai

Discuss what AI can and can't do, talk about atoms and energy, and play something down with 無非……罷了 / 而已.

Opinion essays and debates, a big part of Band C writing and speaking, need a way to say "it's nothing more than…", and AI is the topic everyone is talking about.

words

word	pinyin	meaning	example
力學	lìxué	mechanics (physics)	他大學念的是力學，現在在設計橋。 He studied mechanics at university and now designs bridges.
鋁	lǚ	aluminium	這種鋁做的盒子很輕，又可以回收。 These aluminium boxes are light and can be recycled.
鉛	qiān	lead (the metal)	以前的水管裡有鉛，對身體不好。 Old water pipes had lead in them, which is bad for you.
水力	shuǐlì	water power, hydropower	這個地方用水力發電。 They use hydropower to make electricity here.
水蒸氣	shuǐzhēngqì	water vapour	水燒開以後，就變成水蒸氣了。 Once water boils, it turns into vapour.
鈾	yòu	uranium	核子發電要用鈾。 Nuclear power stations run on uranium.
原子	yuánzǐ	atom	所有的東西都是由原子組成的。 Everything is made up of atoms.
紫外線	zǐwàixiàn	ultraviolet rays, UV	夏天的紫外線很強，出門要戴帽子。 UV is strong in summer: wear a hat when you go out.
人工智慧	réngōngzhìhuì	artificial intelligence, AI	人工智慧已經可以寫文章了。 AI can already write articles.
無非	wúfēi	nothing but, merely	他這麼做，無非是想讓大家注意他罷了。 He's only doing it to get attention, that's all.
固有	gùyǒu	inherent, intrinsic	好奇心是人類固有的。 Curiosity is part of human nature.
光滑	guānghuá	smooth, glossy	這塊石頭摸起來很光滑。 This stone feels very smooth.
互補	hùbǔ	complementary	他們兩個人的個性很互補。 Their personalities complement each other.
混淆	hùnyáo	mix up, confuse	這兩個字很像，很容易混淆。 These two characters look alike and are easy to mix up.
堅信	jiānxìn	firmly believe	我堅信努力一定會有結果。 I firmly believe hard work always pays off.
精華	jīnghuá	the best part, essence	這段影片是這次旅行的精華。 This clip is the highlight of the whole trip.

開闊	kāikuò	open, wide (view, mind)	站在山頂上，視野非常開闊。 From the top of the mountain, the view is wide open.
苦難	kǔnàn	suffering, hardship	她經歷了很多苦難，可是一直很樂觀。 She's been through a lot of hardship, but she's always stayed positive.
立體	lìtǐ	three-dimensional	這張卡片打開以後，裡面的花是立體的。 When you open this card, the flower inside pops up in 3D.
露天	lùtiān	open-air	週末公園裡有一場露天音樂會。 There's an open-air concert in the park at the weekend.
輪廓	lúnkuò	outline, contour	天還沒亮，只看得到山的輪廓。 It isn't light yet: you can only see the outline of the mountains.
倫理	lúnlǐ	ethics	人工智慧也帶來了很多倫理問題。 AI has also raised a lot of ethical questions.

pattern 無非(是).....罷了 / 而已: merely, nothing more than

subject | 無非(是) | the simple reason / thing | 罷了 / 而已

無非 means "it is nothing but": it plays something down to its simple core. It often comes with 是, and the sentence can close with 罷了 or 而已 ("that's all"). 他這麼做，無非是想讓大家注意他罷了. Use it to calm a worry or to make a point in an argument.

這台機器看起來很複雜，其實無非是力學的原理而已。 **zhè tái jīqì kànqǐlái hěn fùzá qíshí wúfēi shì lìxué de yuánlǐ éryǐ** This machine looks complicated, but it's really just basic mechanics.

鉛筆裡其實沒有鉛，這無非是一個老名字罷了。 **qiānbǐ lǐ qíshí méiyǒu qiān zhè wúfēi shì yí ge lǎo míngzi bàle** There's actually no lead in a pencil: it's just an old name.

你們吵架，無非是因為一個小誤會罷了。 **nǐmen chǎojià wúfēi shì yīnwèi yí ge xiǎo wùhuì bàle** You two only argued because of a small misunderstanding.

dialogue is it really that clever?

zhiming 阿傑最近在做一個新功能：用人工智慧幫小店回答客人的問題。

Ājié zuìjìn zài zuò yí ge xīn gōngnéng yòng réngōngzhìhuì bāng xiǎo diàn huídá kèrén de wèntí · Ajie's working on a new feature: AI that answers customers' questions for small shops.

teacher chen 聽起來是很尖端的技術。可是人工智慧真的那麼聰明嗎？我覺得它無非是把網路上的資料整理一下罷了。

tīngqǐlái shì hěn jiānduān de jìshù kěshì réngōngzhìhuì zhēnde nàme cōngmíng ma wǒ juéde tā wúfēi shì bǎ wǎnglù shàng de zīliào zhěnglǐ yíxià bàle · Sounds like cutting-edge technology. But is AI really that clever? It seems to me it just tidies up what's already online, that's all.

ajie 有時候是這樣。它也會把兩件事混淆，還說得很有自信，其實是錯的。唯有人再檢查一次，我們才放心。

yǒushíhou shì zhèyàng tā yě huì bǎ liǎng jiàn shì hùnyáo hái shuō de hěn yǒu zìxìn qíshí shì cuò de wéiyǒu rén zài jiǎnchá yí cì wǒmen cái fàngxīn · Sometimes, yes. It can also mix two things up and sound completely sure of itself while being wrong. Only when a person checks it again do we feel safe.

zhiming 有一次它說王阿姨的店賣牛排，真荒唐！

yǒu yí cì tā shuō Wáng āyí de diàn mài niúpái zhēn huāngtáng · Once it said Auntie Wang's shop sells steak: ridiculous!

anna 我們公司也用它畫圖。它很快就能畫出一個立體的輪廓，可是它畫的皮膚太光滑了，一看就知道不是真的。上個星期，李經理讓它畫一張海報，它畫了一隻有六根手指的手，大家笑了半天。精華的部分，還是要設計師自己做。

wǒmen gōngsī yě yòng tā huà tú tā hěn kuài jiù néng huà chū yí ge lìtǐ de lúnkuò kěshì tā huà de pífū tài guānghuá le yí kàn jiù zhīdào bú shì zhēnde shàng ge xīngqí Lǐ jīnglǐ ràng tā huà yì zhāng hǎibào tā huà le yì zhī yǒu liù gēn shǒuzhǐ de shǒu dàjiā xiào le bàntiān jīnghuá de bùfen háishì yào shèjìshī zìjǐ zuò · We use it for drawing at work too. It can sketch a 3D outline in no time, but the skin it draws is too smooth: you can tell straight away it isn't real. Last week Manager Li had it draw a poster, and it drew a hand with six fingers: we laughed for ages. The best part still has to be done by a designer.

teacher chen 我堅信，人跟機器是互補的。機器沒有人固有的感情，它不懂什麼是苦難。

wǒ jiānxìn rén gēn jīqì shì hùbǔ de jīqì méiyǒu rén gùyǒu de gǎnqíng tā bù dǒng shénme shì kǔnàn · I firmly believe people and machines complement each other. Machines don't have the feelings humans are born with: they don't know what suffering is.

anna 我也這麼覺得。人的感情，才是設計的精髓。

wǒ yě zhème juéde rén de gǎnqíng cái shì shèjì de jīngsuǐ · I think so too. Human feeling is the real essence of design.

zhiming 可是它學得很快。我們打算逐步把它放進每一家店，屆時老闆們就輕鬆多了。

kěshì tā xué de hěn kuài wǒmen dǎsuàn zhúbù bǎ tā fàng jìn měi yì jiā diàn jièshí lǎobǎnmen jiù qīngsōng duō le · But it learns fast. We plan to add it to every shop step by step, and then the owners will have a much easier time.

teacher chen 還有，聽說人工智慧很耗電。光靠水力和太陽能發電，電夠用嗎？

háiyǒu tīngshuō réngōngzhìhuì hěn hào diàn guāng kào shuǐlì hé tàiyáng néng fādiàn diàn gòu yòng ma · And I hear AI uses a lot of electricity. Is there enough power from hydro and solar alone?

ajie 電的問題要靠政府。我們更擔心的是倫理問題：客人的資料，我們會竭力保護，一概不給別人。

diàn de wèntí yào kào zhèngfǔ wǒmen gèng dānxīn de shì lúnlǐ wèntí kèrén de zīliào wǒmen huì jiélì bǎohù yígài bù gěi biérén · Power is a matter for the government. What worries us more are the ethical questions: we'll do everything we can to protect customers' data, and never give it to anyone.

anna 下個月去新竹參觀，屆時你們可以問問那裡做半導體的工程師怎麼看。

xià ge yuè qù Xīnzhú cānguān jièshí nǐmen kěyǐ wèn wen nàlǐ zuò bàndǎotǐ de gōngchéngshī zěnme kàn · When we visit Hsinchu next month, you can ask the semiconductor engineers there what they think.

zhiming 好主意。我們一票人都要去，姑姑也一起來吧？晚上還可以看彗星。

hǎo zhǔyì wǒmen yí piào rén dōu yào qù gūgu yě yìqǐ lái ba wǎnshàng hái kěyǐ kàn huìxīng · Good idea. A whole

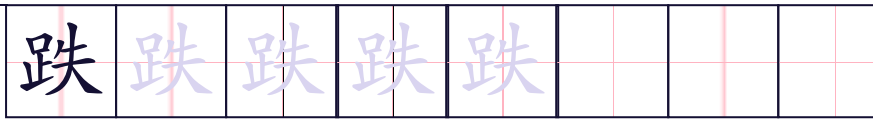
bunch of us are going. Why don't you come too, Aunt? We can watch the comet at night.

write it trace the grey, then write your own

愈
yù
the more (愈……愈……)



跌
dié
fall, drop



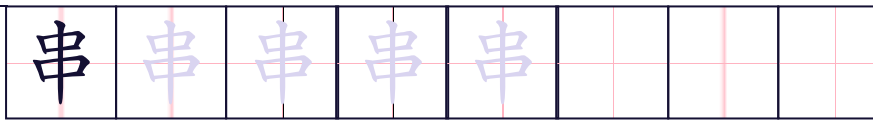
滑
huá
slippery; slide, scroll



隆
lóng
abundant



串
chuàn
string, bunch (measure word)



good to know · New meaning: 票 (ticket, vote) is also a colloquial measure word for a group of people: 一票人, 一票朋友 (a whole bunch of friends). Taiwan says 人工智慧; the mainland says 人工智能. In Taiwan, 智慧型手機 is a smartphone.

You can debate AI, talk about atoms and energy, and cut an argument down to size with 無非……罷了. Do this day interactively, with audio and games, free at **wishyou.today/learning**

wishyou.today learning

day 78 mission: a day at the science park

Chinese TOCFL C in 142 days
unit 11 · science & technology

Follow a full day at a science park: read a visitors' notice aloud, understand a factory tour, discuss AI and a job offer, and talk about the night sky.

Today all of unit 11 comes back in one story: matter and genes, rockets and power, the lab, comets and currents, atoms and AI.

chapter 1 rules for visitors

zhiming 高鐵真快，才半個小時就快到新竹了。阿傑，你同學寄來的參觀須知，念給大家聽吧。

gāotiě zhēn kuài cái bàn ge xiǎoshí jiù kuài dào Xīnzhú le Ājié nǐ tóngxué jì lái de cānguān xūzhī niàn gěi dàjiā tīng ba · The high-speed train is so fast: half an hour and we're nearly in Hsinchu. Ajie, read us the visitors' notice your friend sent.

ajie 「各位來賓好：歡迎參觀本公司。下列事項，請大家注意：一、請於上午九點以前到達大門，屆時將有專人接待。二、進入工廠以前，一律須換上潔白的工作服。三、工廠內禁止拍照，手機請關掉。四、如有身體不舒服，請及早告訴工作人員。謝謝合作。」

gèwèi láibīn hǎo huānyíng cānguān běn gōngsī xiàliè shì xiàng qǐng dàjiā zhùyì yī qǐng yú shàngwǔ jiǔ diǎn yǐqián dàodá dàmén jièshí jiāng yǒu zhuānrén jiēdài èr jìnrù gōngchǎng yǐqián yílǜ xū huàn shàng jiébái de gōngzuò fú sān gōngchǎng nèi jìnzhǐ pāizhào shǒujī qǐng guān diào sì rú yǒu shēntǐ bù shūfu qǐng jízǎo gàosù gōngzuò rényuán xièxie hézuò · "Dear visitors, welcome to our company. Please note the following. One: please arrive at the main gate before 9 a.m., where staff will be waiting to receive you. Two: before entering the factory, everyone without exception must change into white overalls. Three: photography is forbidden inside the factory; please switch off your phones. Four: if you feel unwell, please tell a member of staff as early as possible. Thank you for your cooperation."

david 一律要換衣服？那我這個大包包怎麼辦？我扛了一路。

yílǜ yào huàn yīfú nà wǒ zhè ge dà bāo bāo zěnmebàn wǒ káng le yí lù · Everyone has to change? What about my big bag, then? I've lugged it all the way here.

teacher chen 工廠裡一點灰都不能有，這是他們一貫的規定。包包大概要放在外面。

gōngchǎng lǐ yìdiǎn huī dōu bù néng yǒu zhè shì tāmen yíguàn de guīdìng bāo bāo dàgài yào fàng zài wàimiàn · There can't be a speck of dust in the factory: that's always been their rule. Your bag will probably have to stay outside.

anna 你們看窗外，田一塊一塊的，像一張有花紋的大地圖。我對新竹的觀感是：路好寬闊，天好藍。

nǐmen kàn chuāng wài tián yí kuài yí kuài de xiàng yì zhāng yǒu huāwén de dà dìtú wǒ duì Xīnzhú de guāngǎn shì lù hǎo kuānkuò tiān hǎo lán · Look out of the window: the fields are like a big patterned map. What strikes me about Hsinchu: the roads are so wide and the sky is so blue.

zhiming 新竹見證了臺灣科技四十多年的變遷，從無到有，跨越了好幾個時代。歷來有很多人說，臺灣的經濟就是靠這裡。

Xīnzhú jiànzhèng le Táiwān kējì sìshí duō nián de biànqiān cóng wú dào yǒu kuàyuè le hǎojǐ ge shídài lìlái yǒu hěn duō rén shuō Táiwān de jīngjì jiùshì kào zhèlǐ · Hsinchu has seen more than forty years of change in Taiwan's technology: from nothing, across several eras. People have always said Taiwan's economy depends on this place.

david 這裡的公司都在做什麼？

zhèlǐ de gōngsī dōu zài zuò shénme · What do the companies here make?

ajie 主要是半導體。手機、電腦、汽車，甚至火箭都需要。我同學說，他們最尖端的工廠，一般人尚不能參觀，我們今天看的是比較舊的。

zhǔyào shì bàndǎotǐ shǒujī diànnǎo qìchē shènzhì huǒjiàn dōu xūyào wǒ tóngxué shuō tāmen zuì jiānduān de gōngchǎng yìbān rén shàng bù néng cānguān wǒmen jīntiān kàn de shì bǐjiào jiù de · Mostly semiconductors. Phones, computers, cars, even rockets need them. My friend says ordinary visitors still can't see their most cutting-edge factory: today we're seeing an older one.

teacher chen 今天天氣好，紫外線很強，大家記得戴帽子。氣象局說，晚上局部地區會有雲，不知道能不能觀測彗星。

jīntiān tiānqì hǎo zǐwàixiàn hěn qiáng dàjiā jìde dài màozi qìxiàng jú shuō wǎnshàng júbù dìqū huì yǒu yún bù zhīdào néng bu néng guāncè huìxīng · It's sunny today and the UV is strong, so remember your hats. The weather bureau says there'll be cloud in places tonight; I hope we can still see the comet.

chapter 2 thinner than a hair

ajie 我同學說，這片圓圓的東西就是做半導體的材料，直徑三十公分。

wǒ tóngxué shuō zhè piàn yuán yuán de dōngxi jiùshì zuò bàndǎotǐ de cáiliào zhíjìng sānshí gōngfēn · My friend says this round disc is the material semiconductors are made from. It's thirty centimetres across.

anna 表面好光滑，像鏡子一樣，還會反射燈光。

biǎomiàn hǎo guānghuá xiàng jìngzi yíyàng hái huì fǎnshè dēngguāng · The surface is so smooth, like a mirror: it even reflects the lights.

ajie 上面的線比頭髮細幾千倍，小到只有幾百個原子那麼寬。一點灰掉進去，整片就不能用了。

shàngmiàn de xiàn bǐ tóufǎ xì jǐ qiān bèi xiǎo dào zhǐyǒu jǐ bǎi ge yuánzǐ nàme kuān yìdiǎn huī diào jìn qù zhěng piàn jiù bù néng yòng le · The lines on it are thousands of times thinner than a hair, only a few hundred atoms wide. A speck of dust falls in and the whole disc is ruined.

david 那些機器在做什麼？好像有液體，也有氣體。

nàxiē jīqì zài zuò shénme hǎoxiàng yǒu yètǐ yě yǒu qìtǐ · What are those machines doing? There seem to be liquids and gases.

ajie 有的用氣體在上面「畫」線，有的用液體洗。他們用了幾十種元素，像鋁；以前的產品裡也有鉛，現在一律不用了。有的液體還會腐蝕鐵，用過的水要先把裡面的東西分解掉，才能放回河裡。每一批產品都要抽樣，逐一測過，過關了才能賣。

yǒude yòng qìtǐ zài shàngmiàn huà xiàn yǒude yòng yètǐ xǐ tāmen yòng le jǐ shí zhǒng yuánsù xiàng lǚ yǐqián de chǎnpǐn lǐ yě yǒu qiān xiànzài yílǜ bú yòng le yǒude yètǐ hái huì fǔshí tiě yòng guo de shuǐ yào xiān bǎ lǐmiàn de dōngxi fēnjiě diào cáinéng fàng huí hé lǐ měi yì pī chǎnpǐn dōu yào chōuyàng zhú yī cè guo guòguān le cáinéng mài · Some use gases to "draw" the lines, others wash it with liquids. They use dozens of elements, like aluminium; older products had lead in them too, but none do now. Some of the liquids would eat through iron, and used water has to have everything in it broken down before it can go back into the river. Every batch is sampled and tested one by one, and only what passes can be sold.

zhiming 那邊的人在做什麼？好像在解剖什麼東西。

nà biān de rén zài zuò shénme hǎoxiàng zài jiěpōu shénme dōngxi · What are the people over there doing? It looks like they're dissecting something.

ajie 那是在檢查壞掉的產品，把它切開來看，跟解剖一樣。機器旁邊一點振動都不能有，不然就會出錯。溫度跟水蒸氣也要控制好，不然機器上會凝結水。

nà shì zài jiǎnchá huài diào de chǎnpǐn bǎ tā qiē kāi lái kàn gēn jiěpōu yíyàng jīqì pángbiān yìdiǎn zhèndòng dōu bù néng yǒu bùrán jiù huì chūcuò wēndù gēn shuǐzhēngqì yě yào kòngzhì hǎo bùrán jīqì shàng huì níngjié shuǐ · They're examining faulty products, cutting them open to look inside, just like a dissection. There mustn't be the slightest vibration near the machines, or there'll be errors. Temperature and water vapour have to be controlled too, or water condenses on the machines.

teacher chen 這件工作服摸起來很特別，是什麼纖維做的？還有，這種工廠很耗電吧？臺灣的電，有的靠水力發電，有的靠太陽能，以前也有核子發電。

zhè jiàn gōngzuò fú mō qǐlai hěn tèbié shì shénme xiānwéi zuò de háiyǒu zhè zhǒng gōngchǎng hěn hào diàn ba Táiwān de diàn yǒude kào shuǐlì fādiàn yǒude kào tàiyáng néng yǐqián yě yǒu hézǐ fādiàn · These overalls feel unusual: what fibre are they made of? And factories like this must use a lot of electricity? Taiwan's power comes partly from hydro and partly from solar, and there used to be nuclear too.

ajie 衣服是特別的材料，不會掉毛。電壓、電流都要很穩，電力不夠，生產就停了。這家公司歷來不停地革新，現在還在加緊蓋新的工廠。每一代產品都經過改良，體積越來越小。

yīfú shì tèbié de cáiliào bú huì diào máo diànyā diànliú dōu yào hěn wěn diànlì bú gòu shēngchǎn jiù tíng le zhè jiā gōngsī lìlái bù tíng de géxīn xiànzài hái zài jiājǐn gài xīn de gōngchǎng měi yí dài chǎnpǐn dōu jīngguò gǎiliáng tǐjī yuèláiyuè xiǎo · The suits are a special material that doesn't shed. The voltage and current have to be very stable: if the power runs short, production stops. This company has kept innovating all along, and now it's racing to build new factories. Every generation of chips is improved and gets smaller.

david 看他們工作，我不由得想：原來我們每天用的手機裡，藏著這麼多人的努力。

kàn tāmen gōngzuò wǒ bùyóude xiǎng yuánlái wǒmen měi tiān yòng de shǒujī lǐ cáng zhe zhème duō rén de

nǔlì · Watching them work, I couldn't help thinking: so much effort is hidden inside the phones we use every day.

chapter 3 a hard choice

zhiming 這裡的員工餐廳花樣真多，有臺灣菜，也有日本菜，營養又均衡。
zhèlǐ de yuángōng cāntīng huāyàng zhēn duō yǒu Táiwān cài yě yǒu Rìběn cài yíngyǎng yòu jūnhéng · The staff canteen here has so much choice: Taiwanese food, Japanese food, and it's all nutritious and balanced.

teacher chen 剛才那位工程師說話常常夾雜英文，我差點聽不懂。他說，他們已經用人工智慧來檢查產品了。
gāngcái nà wèi gōngchéngshī shuōhuà chángcháng jiázá yīngwén wǒ chàdiǎn tīng bu dǒng tā shuō tāmen yǐjīng yòng réngōngzhìhuì lái jiǎnchá chǎnpǐn le · That engineer kept slipping into English, and I almost didn't follow. He said they already use AI to check their products.

ajie 對，機器看完照片，隨即就能找出問題，比人快得多。可是它有時候會把兩種問題混淆，最後還是要人來決定。
duì jīqì kàn wán zhàopiàn suíjí jiù néng zhǎo chū wèntí bǐ rén kuài de duō kěshì tā yǒushíhou huì bǎ liǎng zhǒng wèntí hùnyáo zuìhòu háishì yào rén lái juédìng · Yes, once the machine has looked at the images it spots problems straight away, much faster than people. But it sometimes mixes up two kinds of fault, so a person still has to make the final call.

anna 那會不會有一天，連工程師都不需要了？
nà huì bu huì yǒu yì tiān lián gōngchéngshī dōu bù xūyào le · So might there come a day when they don't even need engineers?

teacher chen 這種說法太荒唐了，我堅信不會。人跟機器是互補的。不過，倫理的問題，大家要及早想清楚。
zhè zhǒng shuōfǎ tài huāngtáng le wǒ jiānxìn bú huì rén gēn jīqì shì hùbǔ de búguò lúnlǐ de wèntí dàjiā yào jízǎo xiǎng qīngchǔ · That idea is absurd: I firmly believe not. People and machines complement each other. But everyone needs to think the ethical questions through early.

zhiming 阿傑，你同學剛才把你叫出去，聊了好久，說了什麼？
Ājié nǐ tóngxué gāngcái bǎ nǐ jiào chū qù liáo le hǎo jiǔ shuō le shénme · Ajie, your friend took you aside for ages just now. What did he say?

ajie 他問我要不要來這裡上班。薪水相當可觀，是現在的兩倍。
tā wèn wǒ yào bu yào lái zhèlǐ shàngbān xīnshuǐ xiāngdāng kěguān shì xiànzài de liǎng bèi · He asked if I'd like to come and work here. The salary's very attractive: twice what I get now.

zhiming 真的？……你同學很精，知道你是人才。那是很好的機會。這是你的抉擇，你不用管我。
zhēnde nǐ tóngxué hěn jīng zhīdào nǐ shì réncái nà shì hěn hǎo de jīhuì zhè shì nǐ de juézé nǐ búyòng guǎn wǒ · Really?… Your friend is sharp: he knows talent when he sees it. That's a great opportunity. It's your choice: don't worry about me.

ajie 我尚未回答他。讓我想一想。
wǒ shàng wèi huídá tā ràng wǒ xiǎng yi xiang · I haven't answered him yet. Let me think about it.

david 安娜，你看志明的臉色，全變了。阿傑要是走了，他們的公司不就解體了？
Ānnà nǐ kàn Zhìmíng de liǎnsè quán biàn le Ājié yàoshì zǒu le tāmen de gōngsī bú jiù jiětǐ le · Anna, look at Zhiming's face: it's completely changed. If Ajie leaves, won't their company fall apart?

chapter 4 a wish

anna 天黑了！這裡是露天的，四周好開闊。山的輪廓還看得到，滿天星辰，好美。
tiān hēi le zhèlǐ shì lùtiān de sìzhōu hǎo kāikuò shān de lúnkuò hái kàn de dào mǎn tiān xīngchén hǎo měi · It's dark! It's so open up here. You can still see the outline of the hills, and the sky is full of stars. It's beautiful.

david 彗星在那裡！尾巴好長……王阿姨說得對，當年一定很轟動。
huìxīng zài nàlǐ wěibā hǎo cháng Wáng āyí shuō de duì dāngnián yídìng hěn hōngdòng · There's the comet! What a long tail... Auntie Wang was right: it must have caused a sensation back then.

teacher chen 旁邊那顆很亮的物體不是星星，是一顆行星。行星自己不會發光，是反射太陽的光。今天月亮的光輝不太亮，看得很清楚。
pángbiān nà kē hěn liàng de wùtǐ bú shì xīngxing shì yì kē xíngxīng xíngxīng zìjǐ bú huì fā guāng shì fǎnshè tàiyáng de guāng jīntiān yuèliàng de guānghuī bú tài liàng kàn de hěn qīngchǔ · That very bright object next to it isn't a star, it's a planet. Planets don't shine by themselves: they reflect the sun's light. The moonlight isn't too strong tonight, so you can see clearly.

anna 啊，一顆流星！快許願！
a yì kē liúxīng kuài xǔyuàn · Oh, a shooting star! Quick, make a wish!

david 水沸騰了，我把熱水灌進杯子裡，大家喝茶吧。安娜，等一下又要跟我們講星座了吧？
shuǐ fèiténg le wǒ bǎ rèshuǐ guàn jìn bēizi lǐ dàjiā hē chá ba Ānnà děng yíxià yòu yào gēn wǒmen jiǎng xīngzuò le ba · The water's boiling: I'll pour it into the cups and we can all have tea. Anna, I suppose you're about to lecture us on the constellations again?

ajie 志明，我想好了。我同學的公司成績很輝煌，可是在那裡，我無非是幾千個工程師中的一個罷了。我不想那麼功利，只看薪水。跟你一起做我們的平臺，我才覺得自己在開闢一條新的路。
Zhìmíng wǒ xiǎng hǎo le wǒ tóngxué de gōngsī chéngjī hěn huīhuáng kěshì zài nàlǐ wǒ wúfēi shì jǐ qiān ge gōngchéngshī zhōng de yí ge bàle wǒ bù xiǎng nàme gōnglì zhǐ kàn xīnshuǐ gēn nǐ yìqǐ zuò wǒmen de píngtái wǒ cái juéde zìjǐ zài kāipì yì tiáo xīn de lù · Zhiming, I've made up my mind. My friend's company has a brilliant record, but there I'd be nothing more than one engineer among thousands. I don't want to be so mercenary and only look at the salary. Building our platform with you, I feel I'm opening up a new path.

zhiming 你確定嗎？這個抉擇不容易，薪水差那麼多。
nǐ quèdìng ma zhè ge juézé bù róngyì xīnshuǐ chà nàme duō · Are you sure? It's not an easy choice, with such a difference in salary.

ajie 確定。今天看了那些機器，我領悟到：科技的精髓不是機器，是人。
quèdìng jīntiān kàn le nàxiē jīqì wǒ lǐngwù dào kējì de jīngsuǐ bú shì jīqì shì rén · I'm sure. After seeing those machines today, I realised: the heart of technology isn't the machines, it's the people.

zhiming 謝謝你，阿傑。在最後關頭，你還是選了我們。我們會逐步把公司做大，屆時你的薪水一定也很可觀！
xièxie nǐ Ājié zài zuìhòu guāntóu nǐ háishì xuǎn le wǒmen wǒmen huì zhúbù bǎ gōngsī zuò dà jièshí nǐ de xīnshuǐ yídìng yě hěn kěguān · Thank you, Ajie. At the last moment, you still chose us. We'll grow the company step by step, and by then your salary will be impressive too!

teacher chen 你們兩個真是互補。我歸納一下今天：看了尖端的科技，也看到了比科技更重要的東西。今天的精華，就是剛才那幾句話。這一趟很值得。
nǐmen liǎng ge zhēnshì hùbǔ wǒ guīnà yíxià jīntiān kàn le jiānduān de kējì yě kàn dào le bǐ kējì gèng zhòngyào de dōngxi jīntiān de jīnghuá jiùshì gāngcái nà jǐ jù huà zhè yí tàng hěn zhíde · You two really do complement each other. Let me sum up today: we saw cutting-edge technology, and we saw something more important than technology too. The best part of the day was what was just said. This trip was worth it.

chapter 5 teacher chen reads the display

teacher chen 「彗星是什麼？彗星是繞著太陽走的一種小物體，主要是冰、灰塵和石頭，所以有人叫它『髒雪球』。」

huìxīng shì shénme huìxīng shì rào zhe tàiyáng zǒu de yì zhǒng xiǎo wùtǐ zhǔyào shì bīng huīchén hé shítou suǒyǐ yǒu rén jiào tā zāng xuě qiú · "What is a comet? A comet is a small object that travels around the sun, made mainly of ice, dust and rock, which is why some people call it a 'dirty snowball'."

teacher chen 「它的軌道很長，有的彗星幾年就回來一次，有的要幾千年才回來。離太陽很遠的時候，它又小又暗，用眼睛是看不到的。」

tā de guǐdào hěn cháng yǒude huìxīng jǐ nián jiù huí lái yí cì yǒude yào jǐ qiān nián cái huí lái lí tàiyáng hěn yuǎn de shíhòu tā yòu xiǎo yòu àn yòng yǎnjīng shì kàn búdào de · "Its orbit is very long: some comets come back every few years, others only every few thousand. When it is far from the sun, it is small and dim, and you can't see it with the naked eye."

teacher chen 「彗星離太陽越近，溫度越高，上面的冰隨即變成氣體，帶著灰塵跑出來，形成長長的尾巴。尾巴反射太陽的光，我們在地球上才看得到它。」

huìxīng lí tàiyáng yuè jìn wēndù yuè gāo shàngmiàn de bīng suíjí biànchéng qìtǐ dài zhe huīchén pǎo chū lái xíngchéng cháng cháng de wěibā wěibā fǎnshè tàiyáng de guāng wǒmen zài dìqiú shàng cái kàn de dào tā · "The closer a comet comes to the sun, the hotter it gets; its ice turns straight into gas, carrying dust out with it and forming a long tail. The tail reflects sunlight, and that's why we can see it from Earth."

teacher chen 「很多人以為尾巴一定在彗星後面，其實不是。太陽一直把氣體和灰塵往外推，所以尾巴總是背著太陽。」

hěn duō rén yǐwéi wěibā yídìng zài huìxīng hòumiàn qíshí bú shì tàiyáng yìzhí bǎ qìtǐ hé huīchén wǎng wài tuī suǒyǐ wěibā zǒngshì bèi zhe tàiyáng · "Many people think the tail is always behind the comet, but it isn't. The sun keeps pushing the gas and dust outwards, so the tail always points away from the sun."

teacher chen 「流星跟彗星也有關係：彗星留下的灰塵掉進地球的空氣裡，一燒起來，就是我們看到的流星。」

liúxīng gēn huìxīng yě yǒu guānxì huìxīng liú xià de huīchén diào jìn dìqiú de kōngqì lǐ yì shāo qǐlai jiùshì wǒmen kàn dào de liúxīng · "Shooting stars are linked to comets too: when dust left behind by a comet falls into the Earth's air and burns up, that's the shooting star we see."

Unit 11 done: you can read a visitors' notice, follow a factory tour, debate AI and talk about the night sky, all in Chinese.
Do this day interactively, with audio and games, free at **wishyou.today/learning**