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day 62 digital life

Chinese HSK 6 in 90 days
unit 9 · science & tech

Talk about computers and apps: versions, faults, storage and files, and build new words with -化, -式, -型 and -性.

Every job runs on software, and these four endings let you understand hundreds of new tech and news words on sight.

words

word	pinyin	meaning	example
简化	jiǎnhuà	to simplify	新软件简化了很多步骤。 The new software cuts out a lot of steps.
强化	qiánghuà	to strengthen	我们要强化网络安全。 We need to strengthen our online security.
数字化	shùzìhuà	to digitise; digital	图书馆的老书都数字化了。 The library's old books have all been digitised.
优化	yōuhuà	to optimise, improve	我们要优化工作流程。 We need to streamline the way we work.
理性	lǐxìng	rational; reason	遇到问题时要保持理性。 Stay rational when problems come up.
特性	tèxìng	characteristic, property	每种材料都有自己的特性。 Every material has its own properties.
型号	xínghào	model (number)	你的手机是什么型号? What model is your phone?
性能	xìngnéng	performance (of a machine)	这台电脑的性能很好。 This computer performs really well.
版本	bǎnběn	version, edition	请下载最新的版本。 Please download the latest version.
故障	gùzhàng	fault, breakdown	电梯出故障了，我们走楼梯吧。 The lift has broken down; let's take the stairs.
修复	xiūfù	to repair, restore	这个问题已经修复了。 This problem has been fixed.
启动	qǐdòng	to start (a machine, a project)	电脑启动得很慢。 The computer takes ages to start up.
运行	yùnxíng	to run (a program, a train)	这个软件运行得很稳定。 This program runs very smoothly.
输出	shūchū	to output, export	文章写好以后，可以|输出成{==to export as}图片。 Once the article is written, you can export it as an image.
转换	zhuǎnhuàn	to convert, switch	这个软件能把语音|转换成{==to turn into}文字。 This app can turn speech into text.
压缩	yāsuō	to compress	文件太大，先压缩一下吧。 The file's too big; compress it first.

存储	cúnchǔ	to store (data)	这些照片存储在手机里。 These photos are stored on the phone.
储存	chǔcún	to store, stock up	冬天以前，很多家庭会储存一些{==白菜==}。 Before winter, many families store up some Chinese cabbage.
容量	róngliàng	capacity	我的手机存储容量不够了。 My phone is running out of storage.
文档	wéndàng	document (file)	请把文档发到我的邮箱。 Please send the document to my email.
粘贴	zhāntiē	to paste	把这段文字复制粘贴到文档里。 Copy and paste this text into the document.
下线	xiàxiàn	to go offline; log off	我先下线了，明天再聊。 I'm logging off now. Talk tomorrow.
动态	dòngtài	updates, news; dynamic	我每天都看看朋友们的动态。 I check my friends' updates every day.
漏洞	lòudòng	loophole; (security) bug	这个软件有一个安全漏洞。 This software has a security hole.
弹性	tánxìng	elasticity; flexible	我们公司实行弹性工作时间。 Our company has flexible working hours.

pattern -化, -式, -型, -性: endings that build words

word + 化 / 式 / 型 / 性

-化 means "make or become": 简化 simplify, 现代化 modernise. -式 means "style": 中式 Chinese-style, 西式. -型 means "type": 大型 large-scale, 新型 new-type. -性 means "-ness, -ity": 重要性 importance, 特性 property.

这家饭店的菜是中式的。 **zhè jiā fàndiàn de cài shì zhōng shì de** This restaurant serves Chinese food.

这是一种新型的手机。 **zhè shì yì zhǒng xīnxíng de shǒujī** This is a new kind of phone.

每种材料都有自己的特性。 **měi zhǒng cáiliào dōu yǒu zìjǐ de tèxìng** Every material has its own properties.

我们要优化工作流程。 **wǒmen yào yōuhuà gōngzuò liúchéng** We need to streamline the way we work.

dialogue laptop trouble

anna 小明，我的电脑一时快一时慢，是不是出故障了？
Xiǎomíng wǒ de diànnǎo yìshí kuài yìshí màn shì bu shì chū gùzhàng le · Xiaoming, my laptop is fast one minute and slow the next. Is it broken?

xiaoming 我看看。你的电脑型号太老了，存储容量也快满了。
wǒ kàn kan nǐ de diànnǎo xínghào tài lǎo le cúnchǔ róngliàng yě kuài mǎn le · Let me see. Your model is really old, and the storage is almost full.

anna 里面全是工作文档，我不敢删。
lǐmiàn quán shì gōngzuò wéndàng wǒ bù gǎn shān · It's all work documents. I daren't delete them.

xiaoming 可以把文档储存在网上，再把大的视频压缩一下。
kěyǐ bǎ wéndàng chǔcún zài wǎngshang zài bǎ dà de shìpín yāsuō yíxià · You can store the documents online, and compress the big videos.

anna 还有，我一粘贴，文字就全乱了。
hái yǒu wǒ yì zhāntiē wénzì jiù quán luàn le · And whenever I paste something, the text comes out scrambled.

xiaoming 那是软件的漏洞，新版本已经修复了。更新以后重新启动一下就好。
nà shì ruǎnjiàn de lòudòng xīn bǎnběn yǐjīng xiūfù le gēngxīn yǐhòu chóngxīn qǐdòng yíxià jiù hǎo · That's a bug in the software; the new version has fixed it. Update it, restart, and you're done.

anna 太好了。我们公司的系统也要优化了，最近老是出故障。
tài hǎo le wǒmen gōngsī de xìtǒng yě yào yōuhuà le zuìjìn lǎoshì chū gùzhàng · Great. Our company system needs optimising too; it keeps going offline.

xiaoming 安全方面也得强化，有漏洞就容易出问题。
ānquán fāngmiàn yě děi qiánghuà yǒu lòudòng jiù róngyì chū wèntí · Security needs strengthening too. Where there's a hole, there's trouble.

anna 你说话总是这么理性，什么问题都能说清楚。
nǐ shuōhuà zǒngshì zhème lǐxìng shénme wèntí dōu néng shuō qīngchu · You're always so rational. You can explain anything.

good to know · 存储 is the computer word (data storage); 储存 is everyday storing of anything, from data to winter vegetables. 性 after a word makes a noun of quality: 安全性 safety, 可能性 possibility, 积极性 enthusiasm.

Four little endings, hundreds of words: next time you see 化, 式, 型 or 性 in the news, you can guess the meaning.
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Talk about life online: links, browsers, data, cameras, privacy and staying safe, and use the prefixes 超-, 多-, 无-, 准-.

China lives online, from paying to chatting to working remotely. These words and prefixes are everywhere in apps, ads and news.

words

word	pinyin	meaning	example
多媒体	duōméitǐ	multimedia	我们学校的教室都是多媒体教室。 All our school's classrooms are multimedia rooms.
网	wǎng	net; the internet, network	家里的网太慢了，我看不了{liao3-4}视频。 The internet at home is too slow for videos.
联网	liánwǎng	to go online, connect	这台打印机可以联网。 This printer can connect to the internet.
链接	liànjiē	link; to link	我把链接发给你了。 I've sent you the link.
点击	diǎnjī	to click	点击这里就能下载。 Click here to download.
浏览器	liúlǎnqì	web browser	这个网页要用新的浏览器打开。 Open this page in a newer browser.
论坛	lùntán	forum	他常在论坛上回答别人的问题。 He often answers people's questions on forums.
流量	liúliàng	(mobile) data; traffic, flow	我这个月的流量快用完了。 I've nearly used up my data for this month.
隐私	yǐnsī	privacy	请尊重别人的隐私。 Please respect other people's privacy.
扫描	sǎomiáo	to scan	我把文件扫描以后发给你。 I'll scan the document and send it to you.
摄像头	shèxiàngtóu	camera (webcam)	开会的时候请打开摄像头。 Please turn your camera on for the meeting.
识别	shíbié	to recognise, identify	手机能识别我的脸。 My phone can recognise my face.
实时	shíshí	in real time	这个地图可以实时显示路况。 This map shows the traffic in real time.
远程	yuǎnchéng	remote, long-distance	今天我们开远程会议。 Today we're having a remote meeting.
传输	chuánshū	to transmit, transfer	照片传输得很快。 The photos transfer very quickly.
通信	tōngxìn	to communicate; telecommunications	地震以后，那里的通信中断了一段时间。 After the earthquake, communications

			there were cut for a while.
通讯	tōngxùn	communication(s)	手机已经|成了{==has become}最重要的通讯工具。 The phone has become our most important means of communication.
对接	duìjiē	to connect, link up (systems)	我们的系统下{=next}个月要跟银行对接。 Our system links up with the bank's next month.
跟踪	gēnzōng	to track, follow	你可以在网上跟踪你的快递。 You can track your parcel online.
监测	jiāncè	to monitor	这块手表可以监测心跳。 This watch can monitor your heart rate.
图像	túxiàng	image, picture	这台电视的图像很清晰。 This TV has a very sharp picture.
视觉	shìjué	(sense of) sight, visual	这部电影的视觉效果非常好。 The film's visual effects are superb.
听觉	tīngjué	(sense of) hearing	狗的听觉非常好。 Dogs have excellent hearing.
崭新	zhǎnxīn	brand-new	他穿着一双崭新的鞋。 He's wearing a brand-new pair of shoes.

pattern 超-, 多-, 无-, 准-: prefixes

超 / 多 / 无 / 反 / 准 **+ word**

A few characters work like English prefixes. 超 super-: 超大, 超好用. 多 multi-: 多媒体, 多功能. 无 no, -less: 无线, 无人. 反 anti-, counter-: 反方向. 准 soon-to-be: 准大学生, 准妈妈. 亚 sub-, second (亚军 runner-up) works the same way.

这部手机超好用。 **zhè bù shǒujī chāo hǎo yòng** This phone is super easy to use.

我们学校的教室都是多媒体教室。 **wǒmen xuéxiào de jiàoshì dōu shì duōméitǐ jiàoshì** All our school's classrooms are multimedia rooms.

她下个月就是准大学生了。 **tā xià gè yuè jiùshì zhǔn dàxuéshēng le** Next month she'll be a university student.

dialogue the new browser

little sister 哥哥，我在论坛上看到一个崭新的浏览器，听说超快。
gēge wǒ zài lùntán shàng kàn dào yí gè zhǎnxīn de liúlǎnqì tīngshuō chāo kuài · I saw a brand-new browser on a forum. They say it's super fast.

xiaoming 先别下载。凡是不认识的软件，都要先查一查。
xiān bié xiàzài fánshì bú rènshi de ruǎnjiàn dōu yào xiān chá yi cha · Don't download it yet. Any software you don't know, check it out first.

little sister 你太小心了吧？
nǐ tài xiǎoxīn le ba · Aren't you being a bit too careful?

xiaoming 现在很多软件会跟踪你的位置，还会传输你的数据。
xiànzài hěn duō ruǎnjiàn huì gēnzōng nǐ de wèizhì hái huì chuánshū nǐ de shùjù · These days lots of apps track where you are and send off your data.

little sister 那我们家的摄像头呢？我的隐私会不会被别人看到？
nà wǒmen jiā de shèxiàngtóu ne wǒ de yǐnsī huì bu huì bèi biérén kàn dào · What about our home camera? Could other people see my private life?

xiaoming 只要设置好密码就没问题。我还能远程监测大白在家干什么呢。
zhǐyào shèzhì hǎo mìmǎ jiù méi wèntí wǒ hái néng yuǎnchéng jiāncè Dàbái zài jiā gàn shénme ne · Not if you set a good password. I can even check what Dabai is up to at home from work.

little sister 哈哈，原来你每天上班都在看大白！
hā hā yuánlái nǐ měi tiān shàngbān dōu zài kàn Dàbái · Ha! So you spend your work day watching Dabai!

xiaoming 对啊，图像很清楚，还能实时说话。大白一听到我的声音就跑过来。
duì a túxiàng hěn qīngchu hái néng shíshí shuōhuà Dàbái yì tīng dào wǒ de shēngyīn jiù pǎo guolai · Yep. The picture is clear and we can talk live. Dabai comes running as soon as he hears my voice.

little sister 狗的听觉比视觉还好吧？
gǒu de tīngjué bǐ shìjué hái hǎo ba · A dog's hearing is even better than its eyesight, isn't it?

xiaoming 没错，所以它一听就知道是我。
méi cuò suǒyǐ tā yì tīng jiù zhīdào shì wǒ · Exactly, so he knows it's me the moment he hears me.

write it trace the grey, then write your own

击
jī
to strike

坛
tán
platform, altar

讯
xùn
news, message

good to know · 通信 and 通讯 are close: 通信 is the technical and industry word (通信技术), 通讯 is common for tools and contacts (通讯工具, 通讯录 address book). 超 as “super” is chatty: 超好吃, 超可爱. In writing, prefer 非常 or 十分.

You can now talk tech, warn a friend about privacy, and turn any adjective “super” with 超.
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day 64 how things work

Chinese HSK 6 in 90 days
unit 9 · science & tech

Explain how things work: principles, models, measurements, shapes and materials, and say "even if" with 就算.

Explaining how something works is a core skill at work and in study, and 就算……也…… is how you insist something holds even in the worst case.

words

word	pinyin	meaning	example
原理	yuánlǐ	principle (how it works)	这台机器的原理其实很简单。 The way this machine works is actually simple.
机械	jīxiè	machinery; mechanical	他在一家{=(measure word)}机械工厂当工程师。 He's an engineer at a machinery plant.
构造	gòuzào	structure, construction	人的眼睛构造很复杂。 The human eye has a complex structure.
仪器	yíqì	instrument (scientific)	实验室里有很多新仪器。 The lab has lots of new instruments.
模型	móxíng	model	他做了一个飞机模型。 He made a model plane.
模拟	mónǐ	to simulate	我们先用电脑模拟一下。 Let's simulate it on the computer first.
精确	jīngquè	precise, exact	这个数字不太精确。 This figure isn't very precise.
精准	jīngzhǔn	accurate, on target	他的判断非常精准。 His judgement is spot on.
测量	cèliáng	to measure	我们先测量一下房间的面积。 Let's measure the room first.
毫米	háomǐ	millimetre	只{zhi3}差一毫米，门就关上了。 One more millimetre and the door would have shut.
毫升	háoshēng	millilitre	这瓶水有五百毫升。 This bottle holds 500 millilitres.
平方	píngfāng	square (of a number); square metre	三的平方是九。 Three squared is nine.
体积	tǐjī	volume, size	这个箱子体积太大，放不进车里。 This box is too big to fit in the car.
密度	mìdù	density	这个城市的人口密度很高。 This city is very densely populated.
相等	xiāngděng	to be equal	这两条线的长度相等。 These two lines are the same length.
垂直	chuízhí	perpendicular, vertical	这两面墙必须互相垂直。 These two walls must be at right angles.
旋转	xuánzhuǎn	to rotate, spin	地球绕着太阳旋转。 The Earth goes round the sun.

转动	zhuàndòng	to turn, rotate	风一吹，|风车{==windmill}就转动|起来{==(starts to)}。 When the wind blows, the windmill starts turning.
均匀	jūnyún	even, uniform	做菜的时候，盐要撒得均匀一点儿。 When cooking, sprinkle the salt evenly.
坚硬	jiānyìng	hard, solid	这种木头非常坚硬。 This wood is very hard.
透明	tòumíng	transparent	这个盒子是透明的。 This box is see-through.
物体	wùtǐ	object, body (physics)	天上有一个会发光的物体。 There's a glowing object in the sky.
材质	cáizhì	material (what it's made of)	这件衣服是什么材质的? What's this top made of?
木材	mùcái	timber, wood	这座老房子是用木材建的。 This old house is built of wood.
水泥	shuǐní	cement, concrete	这条路是水泥路。 This road is concrete.

pattern 就算……也……: even if …

就算 **even the extreme case** ，也 **the result stays the same**

就算 sets up a case, often an extreme or unlikely one, and 也 says the result doesn't change. It is spoken and firm; 即使……也…… is the more written version.

就算再忙，我也会给你打电话。 **jiùsuàn zài máng wǒ yě huì gěi nǐ dǎ diànhuà** However busy I am, I'll call you.

就算机器再精准，也需要人来检查。 **jiùsuàn jīqì zài jīngzhǔn yě xūyào rén lái jiǎnchá** However accurate the machine is, people still need to check.

就算模型做得再好，也要在真桥上测试。 **jiùsuàn móxíng zuò de zài hǎo yě yào zài zhēn qiáo shàng cèshì** Even if the model is perfect, it still has to be tested on the real bridge.

dialogue the model bridge

anna 小明，你桌子上这个是什么模型？
Xiǎomíng nǐ zhuōzi shàng zhège shì shénme móxíng · Xiaoming, what's this model on your desk?

xiaoming 是一座桥的模型。我们先用电脑模拟，再做一个小的试一试。
shì yí zuò qiáo de móxíng wǒmen xiān yòng diànnǎo mónǐ zài zuò yí gè xiǎo de shì yi shi · It's a model bridge. We simulate it on the computer first, then build a small one to try out.

anna 它的构造好复杂啊！是什么材质的？
tā de gòuzào hǎo fùzá a shì shénme cáizhì de · The structure looks so complicated! What's it made of?

xiaoming 下面是水泥，上面用的是木材，很坚硬。
xiàmiàn shì shuǐní shàngmiàn yòng de shì mùcái hěn jiānyìng · The bottom is concrete and the top is timber. It's very hard.

anna 这么小的地方，你们怎么测量？
zhème xiǎo de dìfang nǐmen zěnme cèliáng · How do you measure such tiny parts?

xiaoming 用这台仪器，可以精确到零点一毫米。
yòng zhè tái yíqì kěyǐ jīngquè dào líng diǎn yì háomǐ · With this instrument. It's precise to a tenth of a millimetre.

anna 真精准！不过模型归模型，真的桥会一样吗？
zhēn jīngzhǔn búguò móxíng guī móxíng zhēn de qiáo huì yíyàng ma · How accurate! But a model is one thing; will the real bridge be the same?

xiaoming 好问题。就算模型做得再好，也要在真桥上再测试。
hǎo wèntí jiùsuàn móxíng zuò de zài hǎo yě yào zài zhēn qiáo shàng zài cèshì · Good question. However good the model, we still have to test on the real bridge.

anna 那这个转动的部分是做什么的？
nà zhège zhuàndòng de bùfen shì zuò shénme de · And what's this turning part for?

xiaoming 船过来的时候，桥的中间可以旋转，让船通过。
chuán guòlái de shíhou qiáo de zhōngjiān kěyǐ xuánzhuǎn ràng chuán tōngguò · When a ship comes, the middle of the bridge swings round to let it through.

write it trace the grey, then write your own

仪
yí
instrument

拟
nǐ
to imitate; draft

匀
yún
even

good to know · 精确 is exact in measurement (精确到一毫米); 精准 is hitting the target (精准的判断, 精准地找到). 平方 is “squared” in maths and, in speech, short for 平方米: 这套房子一百平方 (100 square metres).

You can now explain how something works, and stand your ground with 就算……也……
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day 65 in the lab

Talk about a science lab: cells, genes, elements and states of matter, testing and proving results, and say “so that” with 以便.

Science news, health reports and school science all use these words, and 以便 is how written Chinese states a purpose.

words

word	pinyin	meaning	example
细胞	xìbāo	cell (biology)	人体是由无数个细胞组成的。 The human body is made of countless cells.
基因	jīyīn	gene	眼睛的颜色是由基因决定的。 Eye colour is decided by genes.
遗传	yíchuán	to inherit (genetically)	这种病会遗传吗? Is this illness hereditary?
进化	jìnhuà	to evolve; evolution	生物的进化需要很长的时间。 Evolution takes a very long time.
元素	yuánsù	element; factor	铜是一种常见的金属元素。 Copper is a common metal element.
气体	qìtǐ	gas	水加热以后会变成气体。 Heated water turns into gas.
液体	yètǐ	liquid	飞机上不能带太多液体。 You can’t take much liquid on a plane.
固体	gùtǐ	solid	冰是固体，水是液体。 Ice is a solid; water is a liquid.
金属	jīnshǔ	metal	这把椅子是金属的。 This chair is metal.
铜	tóng	copper, bronze	这个古老的镜子是铜做的。 This ancient mirror is made of bronze.
氧气	yǎngqì	oxygen	高原上氧气比较少。 There’s less oxygen up on a plateau.
合成	héchéng	to synthesise, combine	这种材料是人工合成的。 This material is man-made.
生成	shēngchéng	to generate, produce	系统会自动生成一份报告。 The system generates a report automatically.
释放	shìfàng	to release	植物在阳光下会释放氧气。 Plants release oxygen in sunlight.
还原	huányuán	to restore (to the original)	这张老照片的颜色被还原了。 The colours of this old photo have been restored.
效应	xiàoyìng	effect	这家{=(measure word)}店请明星做广告，就是想利用名人效应。 The shop hired a star for its adverts to cash in on the celebrity effect.
周期	zhōuqī	cycle, period	这个项目的周期是两年。 This project runs over two years.

频率	pínlǜ	frequency	你运动的频率是多少？一周三次吗? How often do you exercise? Three times a week?
概率	gàilǜ	probability, chance	明天下雨的概率很大。 There's a good chance of rain tomorrow.
检测	jiǎncè	to test, detect	这台仪器可以检测水的质量。 This instrument can test water quality.
检验	jiǎnyàn	to inspect, verify	这批产品都检验过{guo}了。 This batch has all been inspected.
鉴定	jiàndìng	to authenticate, appraise	专家鉴定这幅画是真的。 The experts judged the painting to be genuine.
验证	yànzhèng	to verify, prove	这个想法需要实验来验证。 This idea needs to be tested by experiment.
人为	rénwéi	man-made, caused by people	这次火灾是人为的。 This fire was started by people.

pattern ……，以便……: so that

what you do ，以便 the purpose

以便 opens the second half and gives the aim of the first: do A so that B becomes easier or possible. It is written style; in speech people say 好 or 为了. Its opposite is 以免 (so as not to).

请把电话号码留下，以便我们联系您。 **qǐng bǎ diànhuà hàomǎ liúxia yǐbiàn wǒmen liánxì nín** Please leave your number so that we can contact you.

这些水要放进冰箱，以便明天检测。 **zhèxiē shuǐ yào fàng jìn bīngxiāng yǐbiàn míngtiān jiǎncè** This water must go in the fridge so it can be tested tomorrow.

系统会自动生成报告，以便大家查看。 **xìtǒng huì zìdòng shēngchéng bàogào yǐbiàn dàjiā chákàn** The system generates a report automatically so everyone can see it.

dialogue a tour of the lab

little sister 周博士，这些仪器是用来做什么的?
Zhōubóshì zhèxiē yíqì shì yònglái zuò shénme de · Dr Zhou, what are all these instruments for?

dr zhou 这台用来检测水里有没有金属，比如铜。
zhè tái yònglái jiǎncè shuǐ lǐ yǒu méiyǒu jīnshǔ bǐrú tóng · This one tests whether there's metal in water, copper for example.

anna 那边那台呢?
nàbiān nà tái ne · And that one over there?

dr zhou 那是检验空气的，看看氧气和别的气体有多少。
nà shì jiǎnyàn kōngqì de kàn kan yǎngqì hé biéde qìtǐ yǒu duōshao · That one checks the air: how much oxygen and other gases there are.

little sister 听说您还能鉴定化石的年代?
tīngshuō nín hái néng jiàndìng huàshí de niándài · I heard you can even date fossils?

dr zhou 能。不过周期很长，结果要多次验证，以便确定没有人为的错误。
néng búguò zhōuqī hěn cháng jiéguǒ yào duō cì yànzhèng yǐbiàn quèdìng méiyǒu rénwéi de cuòwù · Yes. But it takes a long time: the results are checked many times, so we're sure there's no human error.

anna 做科学研究真不容易，这也不能马虎，那也不能马虎。
zuò kēxué yánjiū zhēn bù róngyì zhè yě bù néng mǎhu nà yě bù néng mǎhu · Science is hard: you can't be careless about this, or about that.

dr zhou 是啊。就像生物的进化，一代一代，要经过很长很长的时间。
shì a jiù xiàng shēngwù de jìnhuà yídài yídài yào jīngguò hěn cháng hěn cháng de shíjiān · That's right. Like evolution: generation after generation, over a very, very long time.

little sister 基因出现变化的概率大吗?
jīyīn chūxiàn biànhuà de gàilǜ dà ma · Is there a big chance of genes changing?

dr zhou 很小。不过我们可以用电脑还原生物几百万年前的样子。
hěn xiǎo búguò wǒmen kěyǐ yòng diànnǎo huányuán shēngwù jǐ bǎi wàn nián qián de yàngzi · Very small. But we can use computers to reconstruct what living things looked like millions of years ago.

write it trace the grey, then write your own

胞
bāo
womb; sac

铜
tóng
copper, bronze

good to know · 检测, 检验, 鉴定, 验证: test with instruments, inspect against a standard, authenticate (an antique, a fossil), prove (an idea). 率 is lǜ in 频率 frequency and 概率 probability: both are "rates". 作用 "effect" is also a written verb: 作用于 "to act on": 阳光作用于植物. In speech, say 对……有作用 or 影响.

Gas, liquid, solid, gene, cell: you can now follow a science report and explain why results need proving.
Do this day interactively, with audio and games, free at **wishyou.today/learning**

day 66 big projects

Talk about big science and engineering: space, the Moon, research projects, patents, AI and the pipes and bridges that run a city, and set conditions with 除非……才……

Space missions, AI and mega-projects are headline news in China, and 除非……才…… is how you say “only if”.

words

word	pinyin	meaning	example
太空	tàikōng	outer space	人类一直在探索太空的秘密。 People have always tried to discover the secrets of space.
月球	yuèqiú	the Moon	月球上没有空气。 There is no air on the Moon.
天文	tiānwén	astronomy	她从小就对天文很感兴趣。 She’s loved astronomy since she was little.
轨道	guǐdào	orbit; track, rails	月球在自己的轨道上运行。 The Moon moves along its own orbit.
航空	hángkōng	aviation; air (travel)	他在一家{=(measure word)}航空公司工作。 He works for an airline.
基地	jīdì	base	这里是一个科研基地。 This is a research base.
探索	tànsuǒ	to explore	孩子们喜欢探索新事物。 Children love exploring new things.
突破	tūpò	to break through; breakthrough	这项研究取得|了很大的突破。 This research has made a big breakthrough.
科普	kēpǔ	popular science	我想写一篇科普文章。 I want to write a popular-science article.
课题	kètí	research topic, project	你最近在做什么课题? What are you researching at the moment?
考察	kǎochá	to investigate on site, study	他们去南方考察了一个星期。 They spent a week on a study trip in the south.
采集	cǎijí	to collect, gather (samples)	|科学家{==scientists}们在月球上采集了一些土壤。 Scientists collected some soil from the Moon.
搜集	sōují	to collect, gather (information)	我可以帮你搜集资料。 I can help you gather material.
专利	zhuānlì	patent	这项发明已经申请了专利。 A patent has been applied for on this invention.
命名	mìngmíng	to name	这颗星星是用一位|科学家{==scientist}的名字命名的。 This star was named after a scientist.
高新技术	gāoxīnjìshù	high and new technology	这家{=(measure word)}公司专门研发高新技术。

			This company specialises in developing hi-tech.
人工智能	réngōngzhìnéng	artificial intelligence, AI	人工智能已经进入了我们的生活。 AI has become part of our lives.
放大	fàngdà	to enlarge, magnify	这张照片放大以后更清楚了。 The photo is clearer when you zoom in.
覆盖	fùgài	to cover	网络已经覆盖了全国大部分农村。 The network now covers most of the country's villages.
升	shēng	litre	我每天喝两升{sheng1-6}水。 I drink two litres of water a day.
桥梁	qiáoliáng	bridge (formal)	这座桥梁连接了两座城市。 This bridge links two cities.
水库	shuǐkù	reservoir	这个水库能储存很多水。 This reservoir can hold a lot of water.
管道	guǎndào	pipe, pipeline	工人们正在修理地下的管道。 Workers are fixing the pipes underground.
输送	shūsòng	to carry, transport (by pipe, line)	这根管道每天输送大量的水。 This pipe carries huge amounts of water every day.

pattern 除非……才……: only if …

除非 **the one condition** **，才** **the result**

除非 names the only condition, and 才 says the result happens only then. Another common shape is 除非……，否则…… (unless …, otherwise …).

除非你亲自去，他才会同意。 **chúfēi nǐ qīnzì qù tā cái huì tóngyì** He'll only agree if you go in person.

除非天气好，我们才去爬山。 **chúfēi tiānqì hǎo wǒmen cái qù pá shān** We'll only go hiking if the weather is good.

除非大家都同意，这个计划才能实行。 **chúfēi dàjiā dōu tóngyì zhège jìhuà cái néng shíxíng** The plan can go ahead only if everyone agrees.

dialogue an interview about space

anna 周博士，我想写一篇科普文章。您最近在做什么课题？
Zhōubóshì wǒ xiǎng xiě yì piān kēpǔ wénzhāng nín zuìjìn zài zuò shénme kètí · Dr Zhou, I want to write a popular-science article. What are you researching at the moment?

dr zhou 我在研究月球的轨道，跟一个科研基地合作。
wǒ zài yánjiū yuèqiú de guǐdào gēn yí gè kēyán jīdì hézuò · I'm studying the Moon's orbit, together with a research base.

xiaoming 太厉害了！我大学学的就是航空工程。您去那个基地考察过吗？
tài lìhai le wǒ dàxué xué de jiùshì hángkōng gōngchéng nín qù nàge jīdì kǎochá guo ma · Amazing! I studied aeronautical engineering at university. Have you been to the base on a study visit?

dr zhou 去过几次。我所看到的，都是最新的高新技术。
qù guo jǐ cì wǒ suǒ kàn dào de dōu shì zuì xīn de gāoxīn jìshù · A few times. Everything I saw there was the very latest technology.

anna 听说人工智能也用在了太空探索上？
tīngshuō réngōng zhìnéng yě yòng zài le tàikōng tànsuǒ shàng · I hear AI is used in space exploration too?

dr zhou 对，很多数据都靠人工智能来分析，比人快多了。
duì hěn duō shùjù dōu kào réngōng zhìnéng lái fēnxī bǐ rén kuài duō le · Yes, a lot of the data is analysed by AI, much faster than people can.

xiaoming 那研究天文的人以后会不会没有工作？
nà yánjiū tiānwén de rén yǐhòu huì bu huì méiyǒu gōngzuò · So will astronomers be out of a job one day?

dr zhou 不会。除非机器自己会提出好问题，才能代替我们。还早呢！
bú huì chúfēi jīqì zìjǐ huì tíchū hǎo wèntí cái néng dàitì wǒmen hái zǎo ne · No. Only when machines can ask good questions themselves could they replace us. That's a long way off!

anna 说得太好了，我要把这句写进文章里。
shuō de tài hǎo le wǒ yào bǎ zhè jù xiě jìn wénzhāng lǐ · Well said! I'm putting that line in my article.

dr zhou 没问题，我还可以帮你搜集一些资料和照片。
méi wèntí wǒ hái kěyǐ bāng nǐ sōují yìxiē zīliào hé zhàopiàn · Go ahead. I can also help you gather some material and photos.

write it trace the grey, then write your own

轨
guǐ
track, rail

覆
fù
to cover, overturn

good to know · 采集 is collecting physical samples (soil, plants, data from sensors); 搜集 is searching out and gathering information or objects. 升 is the verb "rise" (升高), and the measure word "litre": 一升水 a litre of water.

From the Moon to the water pipes under your street, you can now talk about the big projects that shape our world.
Do this day interactively, with audio and games, free at **wishyou.today/learning**

wishyou.today learning

day 67 energy and the planet

Chinese HSK 6 in 90 days
unit 9 · science & tech

Talk about energy, pollution and green living: coal, oil and gas, solar and wind, emissions and saving energy, in the written style of 于.

Energy and the environment are some of the most-discussed topics in China today, from electric cars to air quality, and reports on them are full of 于.

words

word	pinyin	meaning	example
能源	néngyuán	energy (sources)	我们要节约能源。 We should save energy.
能量	néngliàng	energy (amount)	早饭能给我们一天的能量。 Breakfast gives us energy for the day.
新能源	xīnnéngyuán	new energy (renewables)	越来越多的人开新能源汽车。 More and more people drive electric and other new-energy cars.
太阳能	tàiyángnéng	solar energy	很多家庭在楼顶上装了太阳能。 Lots of families have put solar water heaters on the roof.
风力	fēnglì	wind power	海边有很多风力发电站。 There are lots of wind farms by the sea.
发电	fādiàn	to generate electricity	这条河可以用来发电。 This river can be used to make electricity.
电力	diànlì	electric power	夏天用电多，电力很紧张。 In summer people use a lot of power and supplies get tight.
电源	diànyuán	power supply, socket	出门前请关掉电源。 Please switch off at the mains before you go out.
煤	méi	coal	以前北方冬天主要烧煤取暖。 In the past, northern homes were mostly heated by burning coal.
石油	shíyóu	oil, petroleum	石油的价格又涨了。 The price of oil has gone up again.
天然气	tiānránqì	natural gas	我家做饭用天然气。 We cook with natural gas at home.
燃料	ránliào	fuel	飞机的燃料很贵。 Aircraft fuel is expensive.
消耗	xiāohào	to consume, use up	跑步能消耗很多能量。 Running burns a lot of energy.
节能	jiénéng	to save energy; energy-saving	这种灯很节能。 These lights are very energy-efficient.
低碳	dītàn	low-carbon	骑自行车是一种低碳的出行方式。 Cycling is a low-carbon way to get about.

二氧化碳	èryǎnghuàtàn	carbon dioxide	植物会吸收二氧化碳。 Plants absorb carbon dioxide.
排放	páifàng	to emit, discharge	汽车排放的二氧化碳越来越多。 Cars are giving off more and more carbon dioxide.
污水	wūshuǐ	waste water, sewage	工厂的污水必须处理以后才|能排放。 Factory waste water must be treated before it is released.
饮用水	yǐnyòngshuǐ	drinking water	这里的饮用水很干净。 The drinking water here is very clean.
噪声	zàoshēng	noise	马路上的噪声太大了。 The traffic noise is terrible.
生态	shēngtài	ecology, ecosystem	保护生态就是保护我们自己。 Protecting nature means protecting ourselves.
绿化	lǜhuà	to green (plant trees and grass)	这个小区的绿化做得很好。 This estate has lots of well-kept green space.
再生	zàishēng	to regenerate; renewable	太阳能是可以再生的能源。 Solar power is a renewable energy.
循环	xúnhuán	to circulate; cycle	这些袋子可以循环使用。 These bags can be reused.
短缺	duǎnquē	to be short of; shortage	有些地区饮用水短缺。 Some regions are short of drinking water.

pattern 于 in written phrases: 用于, 来自于, 有利于

verb / adjective **于** **use / source / who benefits**

On day 48, 于 dated and placed things (成立于去年). It also joins fixed written phrases: 用于 used for, 来自于 comes from, 有利于 good for, 位于 located in. They make reports sound neat and serious.

这个风力发电站位于海边。 **zhège fēnglì fādiàn zhàn wèiyú hǎi biān** This wind farm is on the coast.

这种燃料主要用于发电。 **zhè zhǒng ránliào zhǔyào yòngyú fādiàn** This fuel is used mainly to generate electricity.

节能有利于保护环境。 **jiénéng yǒulì yú bǎohù huánjìng** Saving energy is good for the environment.

dialogue a green-living event

little sister 周博士，我们学校要办一个环保活动，您能给我们一些建议吗?
Zhōubóshì wǒmen xuéxiào yào bàn yí gè huánbǎo huódòng nín néng gěi wǒmen yìxiē jiànyì ma · Dr Zhou, our university is holding an environmental event. Could you give us some ideas?

dr zhou 可以从身边做起，比如少开车，少消耗能源。
kěyǐ cóng shēnbiān zuò qǐ bǐrú shǎo kāichē shǎo xiāohào néngyuán · Start with everyday things: drive less, use less energy.

anna 我听说中国的太阳能发电是世界第一?
wǒ tīngshuō Zhōngguó de tàiyángnéng fādiàn shì shìjiè dì yī · I heard China generates more solar power than anywhere else?

dr zhou 对。不过很多地方还在用煤和石油，这些燃料会排放大量的二氧化碳。
duì búguò hěn duō dìfang hái zài yòng méi hé shíyóu zhèxiē ránliào huì páifàng dàliàng de èryǎnghuàtàn · That's right. But many places still use coal and oil, and those fuels give off a lot of carbon dioxide.

little sister 那电动车呢? 它用的也是电啊。
nà diàndòngchē ne tā yòng de yě shì diàn a · What about e-bikes? They run on electricity too.

dr zhou 好问题。如果电来自新能源，就更低碳了。
hǎo wèntí rúguǒ diàn láizì xīnnéngyuán jiù gèng dītàn le · Good question. If the electricity comes from renewables, they're even lower-carbon.

anna 城市里的噪声也是一种污染吧?
chéngshì lǐ de zàoshēng yě shì yì zhǒng wūrǎn ba · City noise is a kind of pollution too, isn't it?

dr zhou 是的。多做城市绿化，种树种草，既能减少噪声，也有利于生态。
shì de duō zuò chéngshì lǜhuà zhòng shù zhòng cǎo jì néng jiǎnshǎo zàoshēng yě yǒulì yú shēngtài · Yes. More green space, trees and grass, cuts noise and is good for nature.

little sister 那我们的活动就叫“低碳生活，循环使用”!
nà wǒmen de huódòng jiù jiào dītàn shēnghuó xúnhuán shǐyòng · Then we'll call our event “Low-carbon living: reuse and recycle”!

dr zhou 好名字! 能源要节约，东西要循环使用。
hǎo míngzi néngyuán yào jiéyuē dōngxi yào xúnhuán shǐyòng · Great name! Save energy, and reuse things.

write it trace the grey, then write your own

煤
méi
coal

耗
hào
to consume

good to know · 能源 is the source (coal, sun, wind); 能量 is the amount of energy (food gives you 能量). In China, cars running on electricity are called 新能源汽车, “new-energy vehicles”, and carry green number plates.

Coal or sun, oil or wind: you can now join one of the biggest conversations of our time, in Chinese. Do this day interactively, with audio and games, free at **wishyou.today/learning**

day 68 mission: the science fair

Follow a story about a science fair, using the words of computers, the internet, machines and measuring, the lab, space and big projects, and energy together.

Presenting a project, fixing a last-minute bug and answering tough questions: this is how science and tech talk sounds in real life.

chapter 1 a machine that tests water

little sister 哥哥，这就是我们的作品：一个可以检测河水的小机器人。
gēge zhè jiùshì wǒmen de zuòpǐn yí gè kěyǐ jiǎncè hé shuǐ de xiǎo jīqìrén · This is our project: a little robot that tests river water.

xiaoming 不错啊！它的原理是什么？
búcuò a tā de yuánlǐ shì shénme · Not bad! How does it work?

little sister 它浮在水面上，用仪器测量水里的金属和气体，再把数据实时传输到手机上。
tā fú zài shuǐmiàn shàng yòng yíqì cèliáng shuǐ lǐ de jīnshǔ hé qìtǐ zài bǎ shùjù shíshí chuánshū dào shǒujī shàng · It floats on the surface, measures the metals and gases in the water with its instruments, and sends the data to a phone in real time.

xiaoming 外面是透明的，里面的机械构造都看得很清楚。
wàimiàn shì tòumíng de lǐmiàn de jīxiè gòuzào dōu kàn de hěn qīngchu · The outside is see-through: you can clearly see the mechanical parts inside.

little sister 上面的摄像头可以旋转，三百六十度都能拍到。
shàngmiàn de shèxiàngtóu kěyǐ xuánzhuǎn sānbǎiliùshí dù dōu néng pāi dào · The camera on top can rotate, so it can film all 360 degrees.

xiaoming 它体积这么小，密度又比水低，难怪能浮起来。
tā tǐjī zhème xiǎo mìdù yòu bǐ shuǐ dī nánguài néng fú qǐlai · It's so small and less dense than water: no wonder it floats.

little sister 我们先做过一个模型，还在电脑上模拟了好几次。
wǒmen xiān zuò guo yí gè móxíng hái zài diànnǎo shàng mónǐ le hǎojǐ cì · We built a model first, and ran quite a few simulations on the computer.

xiaoming 用的是什么能源？
yòng de shì shénme néngyuán · What does it run on?

little sister 太阳能！又节能又低碳。白天储存的能量，晚上也够用。
tàiyángnéng yòu jiénéng yòu dītàn báitiān chǔcún de néngliàng wǎnshang yě gòu yòng · Solar power! Energy-saving and low-carbon. The energy it stores in the day lasts through the night.

little sister 而且它是多功能的，还能测水深，精准到一毫米。
érqiě tā shì duō gōngnéng de hái néng cè shuǐ shēn jīngzhǔn dào yì háomǐ · And it's multi-functional: it can also measure the depth of the water, accurate to one millimetre.

xiaoming 性能不错。不过外面的材质要坚硬一点儿，以免被石头撞坏。
xìngnéng búcuò búguò wàimiàn de cáizhì yào jiānyìng yìdiǎnr yǐmiǎn bèi shítou zhuàng huài · It performs well. But the outside needs to be tougher so rocks don't damage it.

little sister 好，我们明天就换一种。木材怕水，水泥又太重，那就用硬塑料吧。
hǎo wǒmen míngtiān jiù huàn yì zhǒng mùcái pà shuǐ shuǐní yòu tài zhòng nà jiù yòng yìng sùliào ba · OK, we'll change the material tomorrow. Wood doesn't like water and concrete is too heavy, so we'll use hard plastic.

chapter 2 crash!

little sister 糟糕！电脑出故障了，启动不了！
zāogāo diànnǎo chū gùzhàng le qǐdòng bu liǎo · Oh no! The computer's broken down: it won't start!

xiaoming 别着急。这台电脑是什么型号？系统是哪个版本？
bié zháojí zhè tái diànnǎo shì shénme xínghào xìtǒng shì nǎge bǎnběn · Don't panic. What model is this computer? Which version is the system?

anna 你们的文档都存储在网上吗？
nǐmen de wéndàng dōu cúnchǔ zài wǎngshang ma · Are your documents all stored online?

little sister 大部分在网上，可是视频还在电脑里。
dà bùfen zài wǎngshang kěshì shìpín hái zài diànnǎo lǐ · Most of them, but the video is still on the computer.

xiaoming 我来看看……是软件的一个漏洞，我已经修复了。
wǒ lái kàn kan shì ruǎnjiàn de yí gè lòudòng wǒ yǐjīng xiūfù le · Let me see … it's a bug in the software. I've fixed it.

xiaoming 另外，电脑的容量快满了，难怪运行得超慢。
lìngwài diànnǎo de róngliàng kuài mǎn le nánguài yùnxíng de chāo màn · Also, the computer is almost full: no wonder it runs so slowly.

anna 太好了！视频太大的话，先压缩一下再上传，不然太费流量。
tài hǎo le shìpín tài dà dehuà xiān yāsuō yíxià zài shàngchuán bùrán tài fèi liúliàng · Brilliant! If the video's too big, compress it before you upload it, or it'll eat up your data.

little sister 视频还得先转换一下，再输出。
shìpín hái děi xiān zhuǎnhuàn yíxià zài shūchū · The video still has to be converted first, then exported.

xiaoming 说明文字太长了，我帮你简化一下，你直接粘贴到文档里。
shuōmíng wénzì tài cháng le wǒ bāng nǐ jiǎnhuà yíxià nǐ zhíjiē zhāntiē dào wéndàng lǐ · The description is too long. I'll simplify it for you, and you just paste it into the document.

anna 你的同学刚发了条动态：“我先下线了，明天见！”
nǐ de tóngxué gāng fā le tiáo dòngtài wǒ xiān xiàxiàn le míngtiān jiàn · Your classmate just posted an update: “I'm logging off, see you tomorrow!”

little sister 谢谢你们！就算今天不睡觉，我也要把这个视频做完。
xièxie nǐmen jiùsuàn jīntiān bú shuìjiào wǒ yě yào bǎ zhège shìpín zuò wán · Thank you both! Even if I don't sleep tonight, I'm finishing this video.

xiaoming 还是早一点儿睡吧，明天回答问题头脑要清醒。
háishi zǎo yìdiǎnr shuì ba míngtiān huídá wèntí tóunǎo yào qīngxǐng · Better get some sleep. Tomorrow you need a clear head for the questions.

chapter 3 something in the water

little sister 比赛前，我们得来水库考察一次，在真的水里试一试。
bǐsài qián wǒmen děi lái shuǐkù kǎochá yí cì zài zhēn de shuǐ lǐ shì yi shi · Before the contest we have to come to the reservoir once and try it in real water.

xiaoming 每天有几百万升水从这里通过管道输送到城里。
měi tiān yǒu jǐ bǎi wàn shēng shuǐ cóng zhèlǐ tōngguò guǎndào shūsòng dào chéng lǐ · Every day millions of litres of water are carried from here to the city through pipes.

anna 你们看，水面上覆盖着一层绿色的东西。
nǐmen kàn shuǐmiàn shàng fùgài zhe yì céng lǜsè de dōngxi · Look, the surface is covered with a layer of something green.

little sister 我们先采集一些水，每瓶两百毫升。
wǒmen xiān cǎijí yìxiē shuǐ měi píng liǎngbǎi háoshēng · Let's collect some water first, two hundred millilitres a bottle.

little sister 机器人显示：水里的铜比平时多，氧气却少了一半。
jīqìrén xiǎnshì shuǐ lǐ de tóng bǐ píngshí duō yǎngqì què shǎo le yíbàn · The robot shows more copper in the water than usual, but only half the oxygen.

anna 这是自然现象，还是人为的？
zhè shì zìrán xiànxiàng háishi rénwéi de · Is this natural, or caused by people?

xiaoming 附近有一家工厂，很可能是它排放的污水。
fùjìn yǒu yì jiā gōngchǎng hěn kěnéng shì tā páifàng de wūshuǐ · There's a factory nearby; it's very likely its waste water.

little sister 这种金属会慢慢释放到水里，直接作用于鱼的细胞。
zhè zhǒng jīnshǔ huì màn màn shìfàng dào shuǐ lǐ zhíjiē zuòyòng yú yú de xìbāo · This metal is slowly released into the water and acts directly on the fish's cells.

anna 这可是全城的饮用水啊，安全性太重要了！
zhè kěshì quán chéng de yǐnyòngshuǐ a ānquán xìng tài zhòngyào le · This is the whole city's drinking water: its safety really matters!

little sister 我把图像放大看看……污染好像有固定的周期，而且频率越来越高。
wǒ bǎ túxiàng fàngdà kàn kan wūrǎn hǎoxiàng yǒu gùdìng de zhōuqī érqiě pínlǜ yuè lái yuè gāo · Let me enlarge the images … the pollution seems to come in a regular cycle, and more and more often.

anna 那你们要天天跑来吗？
nà nǐmen yào tiān tiān pǎo lái ma · So will you have to come out here every day?

little sister 不用，它能联网，我们可以远程跟踪，在家打开浏览器就能看到。
búyòng tā néng liánwǎng wǒmen kěyǐ yuǎnchéng gēnzōng zài jiā dǎkāi liúlǎnqì jiù néng kàn dào · No, it connects to the internet, so we can track it remotely: just open a browser at home.

chapter 4 tough questions

dr zhou 你们好，今天由我来给大家打分。请介绍一下你们的课题。
nǐmen hǎo jīntiān yóu wǒ lái gěi dàjiā dǎfēn qǐng jièshào yíxià nǐmen de kètí · Hello, I'm judging today. Tell me about your project.

little sister 我们的机器人可以监测河水，以便及时发现污水。
wǒmen de jīqìrén kěyǐ jiāncè hé shuǐ yǐbiàn jíshí fāxiàn wūshuǐ · Our robot monitors river water so that waste water can be spotted in time.

little sister 它能检测十几种元素，主要是金属。
tā néng jiǎncè shí jǐ zhǒng yuánsù zhǔyào shì jīnshǔ · It can detect a dozen or so elements, mainly metals.

dr zhou 数据精确吗？你们怎么验证结果？
shùjù jīngquè ma nǐmen zěnme yànzhèng jiéguǒ · Is the data accurate? How do you check your results?

little sister 每次测量以后，我们都会采集一些水，在实验室里再检验一次。
měi cì cèliáng yǐhòu wǒmen dōu huì cǎijí yìxiē shuǐ zài shíyànshì lǐ zài jiǎnyàn yí cì · After each measurement we collect some water and test it again in the lab.

little sister 我们的仪器还通过了专家鉴定，出错的概率很低。
wǒmen de yíqì hái tōngguò le zhuānjiā jiàndìng chū cuò de gàilǜ hěn dī · Our instruments have also passed an expert assessment, and the chance of errors is low.

dr zhou 摄像头会不会拍到游客，涉及别人的隐私？
shèxiàngtóu huì bu huì pāi dào yóukè shèjí biérén de yǐnsī · Could the camera film visitors and intrude on people's privacy?

little sister 不会，它只拍水面。系统会把图像合成一张地图，自动生成报告。
bú huì tā zhǐ pāi shuǐmiàn xìtǒng huì bǎ túxiàng héchéng yì zhāng dìtú zìdòng shēngchéng bàogào · No, it only films the water. The system combines the images into a map and produces a report by itself.

dr zhou 很好。至于以后，你们想让它做什么？
hěn hǎo zhìyú yǐhòu nǐmen xiǎng ràng tā zuò shénme · Very good. As for the future, what do you want it to do?

little sister 我们想借助人工智能，让它自己识别哪里的水有问题。
wǒmen xiǎng jièzhù réngōng zhìnéng ràng tā zìjǐ shíbié nǎlǐ de shuǐ yǒu wèntí · We want to use AI so it can work out by itself where the water has a problem.

dr zhou 这是个崭新的想法。除非多做实验，才能证明它真的有用。
zhè shì gè zhǎnxīn de xiǎngfǎ chúfēi duō zuò shíyàn cái néng zhèngmíng tā zhēn de yǒuyòng · That's a brand-new idea. Only more experiments will prove it really works.

dr zhou 下一阶段，可以把系统再优化一下，让监测更智能化，再和环保部门对接。
xià yì jiēduàn kěyǐ bǎ xìtǒng zài yōuhuà yíxià ràng jiāncè gèng zhìnéng huà zài hé huánbǎo bùmén duìjiē · Next, you could optimise the system, make the monitoring smarter, and link it up with the environment department.

chapter 5 and the winner is ...

anna 快看，你们拿了第一名！
kuài kàn nǐmen ná le dì yī míng · Look, you've come first!

little sister 真的吗？我简直不敢相信！
zhēn de ma wǒ jiǎnzhí bù gǎn xiāngxìn · Really? I can't believe it!

dr zhou 祝贺你们！学校还会帮你们申请专利。
zhùhè nǐmen xuéxiào hái huì bāng nǐmen shēnqǐng zhuānlì · Congratulations! The university will help you apply for a patent too.

dr zhou 各位同学，今年的作品从太空到新能源，每一个都是一次探索。
gèwèi tóngxué jīnnián de zuòpǐn cóng tàikōng dào xīnnéngyuán měi yí gè dōu shì yí cì tànsuǒ · Dear students, this year's projects, from outer space to new energy, are each a voyage of exploration.

dr zhou 有一组模拟了月球基地的生活，还有一组搜集了很多天文数据。
yǒu yì zǔ mónǐ le yuèqiú jīdì de shēnghuó hái yǒu yì zǔ sōují le hěn duō tiānwén shùjù · One team simulated life on a Moon base, and another gathered a lot of astronomy data.

dr zhou 过去我们靠煤、石油和天然气，可这些燃料总有一天会短缺。
guòqù wǒmen kào méi shíyóu hé tiānránqì kě zhèxiē ránliào zǒng yǒu yì tiān huì duǎnquē · In the past we relied on coal, oil and natural gas, but one day these fuels will run short.

dr zhou 而且消耗这些燃料会释放大量二氧化碳，破坏生态。
érqiě xiāohào zhèxiē ránliào huì shìfàng dàliàng èryǎnghuàtàn pòhuài shēngtài · And burning through them releases huge amounts of carbon dioxide and damages the ecosystem.

dr zhou 所以我们要用风力和太阳能发电，让电力来自可再生的能源。
suǒyǐ wǒmen yào yòng fēnglì hé tàiyángnéng fādiàn ràng diànlì láizì kě zàishēng de néngyuán · So we need wind and solar power to generate electricity, so that our power comes from renewable sources.

dr zhou 资源要循环使用，城市要多绿化，这需要新的突破，也需要你们。
zīyuán yào xúnhuán shǐyòng chéngshì yào duō lǜhuà zhè xūyào xīn de tūpò yě xūyào nǐmen · Resources should be recycled and cities need more green spaces: that takes new breakthroughs, and it takes you.

anna 我要把你们的故事写进我的科普文章，链接发到网上。
wǒ yào bǎ nǐmen de gùshi xiě jìn wǒ de kēpǔ wénzhāng liànjiē fā dào wǎngshang · I'm putting your story in my popular-science article and posting the link online.

little sister 那我的朋友们一点击就能看到了！
nà wǒ de péngyoumen yì diǎnjī jiù néng kàn dào le · Then my friends can see it with one click!

dr zhou 科学就是这样：不试不知道，一试才发现，自己也能改变世界。
kēxué jiùshì zhèyàng bú shì bù zhīdào yí shì cái fāxiàn zìjǐ yě néng gǎibiàn shìjiè · That's science: you never know until you try, and then you find you can change the world too.

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