《中国空间站首次太空授课活动取得圆满成功》

据中国载人航天工程办公室消息，北京时间2021年12月9日15:40，“天宫课堂”第一课正式开讲，时隔8年之后，中国航天员再次进行太空授课。“太空教师”翟志刚、王亚平、叶光富在中国空间站为广大青少年带来了一场精彩的太空科普课，这是中国空间站首次太空授课活动。

12月9日，王亚平（左）、叶光富在进行太空授课。

Chinese astronauts, Zhai Zhigang, Wang Yaping, and Ye Guangfu, conducted the science lecture 400 kilometers above Earth, as they orbited in the Tiangong space station.They showed viewers how they live and work inside the space station.
航天员翟志刚、王亚平、叶光富在距离地球400公里外的中国“天宫”空间站带来了一堂科普课。他们向直播观众介绍展示了空间站工作生活场景。

此次太空授课活动进行了全程现场直播，在中国科技馆设地面主课堂，在广西南宁、四川汶川、香港、澳门分设4个地面分课堂，共1420名中小学生代表参加现场活动。

“飘”在核心舱里的三位航天员相互配合，首先带领大家参观了航天员的太空家园。

Wang showed the students the microwave, water dispenser and refrigerator in the space kitchen.
王亚平向同学们展示了“太空厨房”里的微波炉、饮水分配器和冰箱。

关于水循环

In response to a Hong Kong student's question about water, Wang said the water they drink is recycled, noting that there is no difference in taste between regular and recycled water. With a water recycling system, every drop of water is made full use of in the space station, she said.
在回答香港一名同学关于水的问题时，王亚平表示，他们喝的水都是循环水，口感跟普通水没什么区别。她说，空间站的水循环系统可以让每一滴水都得到充分利用。

12月9日，学生们在北京中国科技馆观看王亚平（右）展示如何在太空中饮用再生水。

为何航天员看起来都“胖胖的”？

Wang said the astronauts may look a little chubby and puffy as the microgravity in space can affect blood circulation. They use a treadmill, spin bike and resistance bands to stay healthy.
王亚平说，因为太空中的微重力会影响血液循环，所以航天员看起来可能有些胖胖的

，有点浮肿。他们会用跑步机、健身自行车以及阻力带等设备健身。

Zhai introduced the special uniform Ye was wearing during the class. According to Zhai, it is called a "penguin jumpsuit" and it has multiple elastic bands inside to help the astronauts maintain their muscle strength.
课堂上，翟志刚还介绍了叶光富身上穿的一款特殊制服。他说，这个衣服叫“企鹅服”，内部有多个弹力拉带，可以帮助航天员保持肌肉健康。

多项实验演示

授课期间，三位航天员演示了微重力环境下细胞学实验、人体运动、液体表面张力等神奇现象，并讲解了实验背后的科学原理。

Ye demonstrated experiments related to cell growth in the weightless environment in space. They compared the growth and shape of cells in artificial gravity and zero-gravity, so as to study their changing rules and mechanisms.
叶光富演示了在太空失重环境下细胞生长的实验。他们将人工重力和零重力环境下细胞的生长和形态进行对比，来研究其变化的规律和机制。

In a buoyancy experiment, Wang put a table tennis ball in a glass of water. Instead of floating to the surface like on Earth, the ball remained in the middle of the water. Buoyancy almost disappeared in the weightless environment.
在浮力实验中，王亚平将一个乒乓球放进一杯水中，乒乓球并没有像在地球上那样浮到水面，而是停留在水中。在失重环境下，浮力几乎消失。

【词汇讲解】

这里的buoyancy，读作[ˈbɔɪ.ən.si]，指“浮力”（the quality of being able to float），比如，the buoyancy of water（水的浮力）；此外，这个词也可以用来表示某人“积极向上的”，或者“（商业行情）看涨的，向好的”，比如：He was a man of remarkable buoyancy.（他是个特别积极向上的人）；There is continued buoyancy in the property market.（房地产市场持续看涨）。

Wang also demonstrated how zero gravity magnifies the surface tension of water.
王亚平还演示了零重力如何放大水的表面张力。

She created a water film using a metal ring and a bag filled with water. Then she placed on the water film a flower bud she and her daughter folded with paper before the space journey. The bud rotated magically on the film and "blossomed."
她用一个金属圈和一个水袋做了个水膜，然后将事先折好的一个花朵折纸放在水膜上，花朵在水膜上神奇地旋转“开放”了。

Wang then injected water into the film, and it became a transparent water ball. Through

it, Wang's inverted image appeared. "We know that this phenomenon is called convex lens imaging." She explained.
她再往水膜上继续加水，最终变成一个透明的大水球。透过水球，可以看到王亚平反着的人像。她解释说：“这个现象叫做凸透镜成像。”

12月9日，学生们在北京中国科技馆观看航天员展示水球光学实验。

However, when Ye injected a bubble into the water ball, two images of Wang appeared, with the big image inverted and the small one in the bubble upright.
而当叶光富向水球注入一个气泡后，水球则倒映出王亚平一正一反两个人像。

After that, Wang pumped the bubble out and injected blue pigment. Then, she dropped an effervescent tablet into the blue ball, producing many little bubbles.
接着，她将蓝色颜料注入水球，又将一片泡腾片放进水球，水球中开始产生越来越多的小气泡。

"In the weightless environment in space, bubbles can not leave the water ball, as they do on Earth."
王亚平说：“在失重环境下，气泡没有像在地面那样很快离开水球。”

航天员还与地面课堂师生进行了实时互动交流。来自中国科技馆地面主课堂和广西、四川、香港、澳门四个地面分课堂的同学们接二连三向航天员老师提问，并一一得到了解答。

后续，“天宫课堂”将持续开展太空授课活动，积极传播载人航天知识和文化，持续开展形式多样、内容丰富的航天科普教育。

【相关词汇】

出舱活动 extravehicular activities (EVAs)

载人飞船 manned spacecraft

货运飞船 cargo spacecraft

舱外航天服 extravehicular spacesuits

“太空授课” space-based lecture

空间站 space station

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