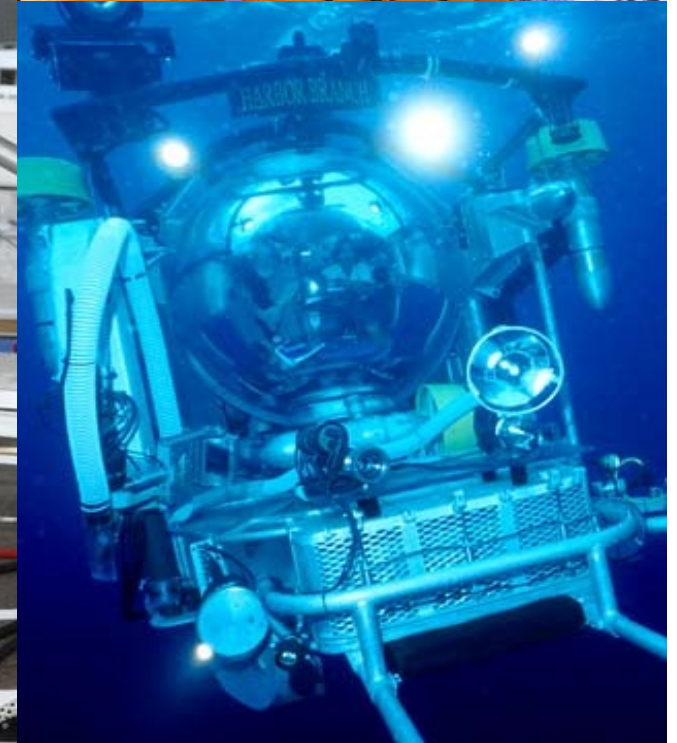


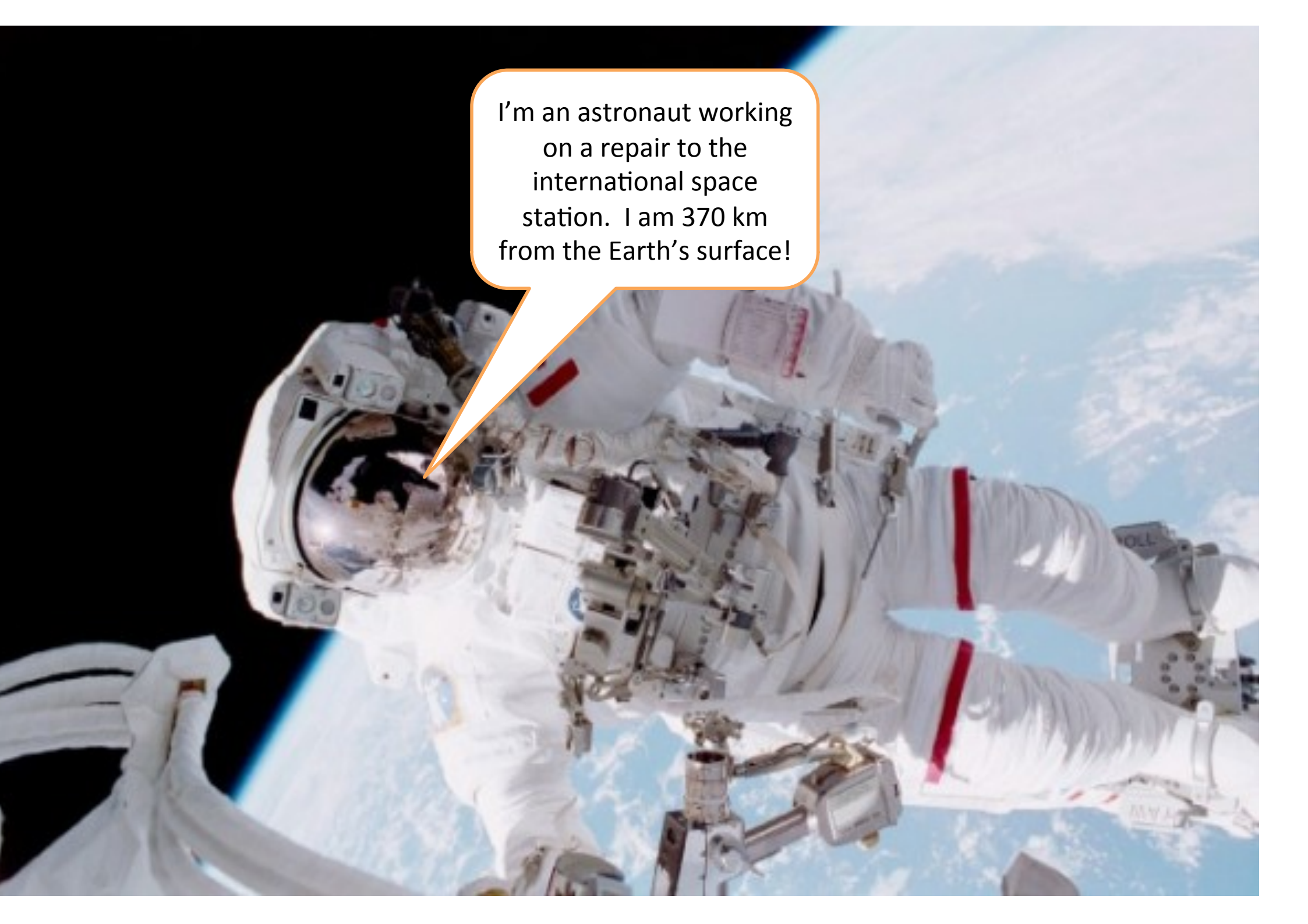
<b>Topic</b>	Pressure in liquids and gases	<b>Level</b>	GCSE (or any course for students aged 11-16)
<b>Outcomes</b>	<ol style="list-style-type: none"> <li>1. To describe and explain the changes in atmospheric pressure</li> <li>2. To use the particle model to explain changes in pressure in both liquids and gases</li> <li>3. Explain how pressure changes with depth in liquids</li> <li>4. Covert between Pa and kPa</li> </ol> <p>This resource was contributed by Terry Baylis</p>		

*Instructions for teachers: this activity requires students to have an understanding of the particle model for solids, liquids and gases. Students then use these ideas to explain pressure in liquids and gases.*



Who is  
under the  
most  
pressure?




A photograph of an astronaut in a white space suit working on the International Space Station (ISS). The astronaut is positioned in the center-left of the frame, with their body angled towards the right. The suit is white with red stripes on the legs and a red stripe on the chest. The astronaut's helmet is visible, and they appear to be focused on a task. The background is the Earth's surface, showing a blue sky and white clouds, with the blackness of space visible at the top. A speech bubble is overlaid on the image, containing text.

I'm an astronaut working on a repair to the international space station. I am 370 km from the Earth's surface!

I'm Felix Baumgartner  
and I am jumping 39 km  
to the Earth from the  
edge of space!



ZENITH

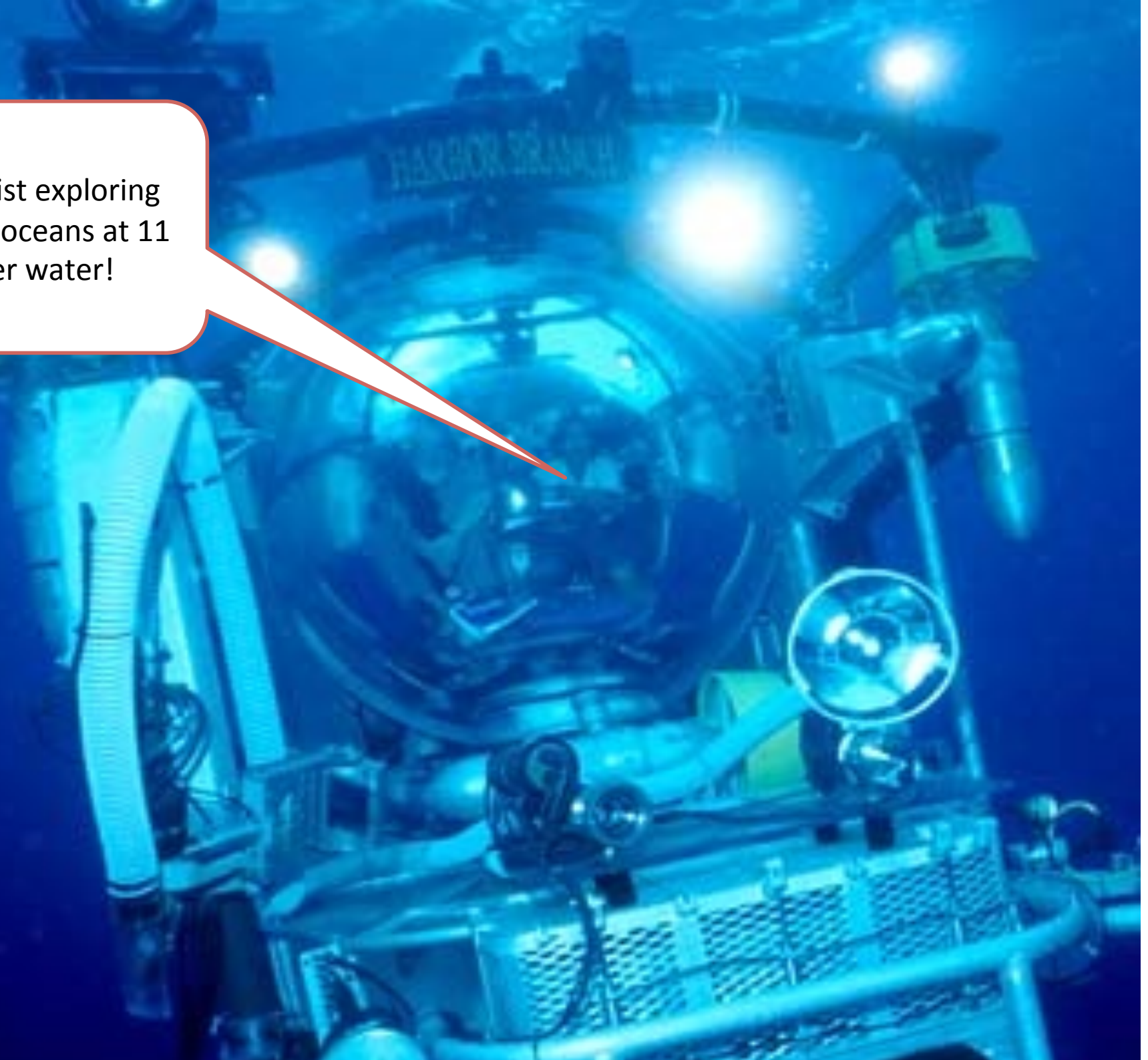
A climber wearing a bright yellow puffy jacket, a black beanie, and red-rimmed goggles is standing on a snowy mountain peak. The climber is wearing a red oxygen mask and has a black oxygen tank attached to their gear. The background shows a vast, snow-covered mountain range under a clear blue sky with some white clouds. A speech bubble is positioned in the upper right quadrant of the image.

I have just conquered Everest! I am 8.8 km above sea level.

I'm the youngest person  
ever to sail around the  
world!



I'm a scientist exploring  
the deepest oceans at 11  
km under water!



(Approximate scale)

International Space Station  
- 370 km



Particle diagram



Q7: What would happen to an astronaut if it wasn't for their space suit? Explain your answer.

Q6: Approximately what pressure should it be inside a space suit? Explain your answer.

Particle diagram



Q5: The further Felix fell, the more his rate of acceleration reduced. Why?

Particle diagram



Q4: How would you calculate the density of air if you had a beaker, a balloon, some water and a balance?

Particle diagram



Q3: At sea level, atmospheric pressure is 101,325 Pa. What is the pressure in kPa?

Felix Baumgartner Jump  
- 39 km



Particle diagram



Q2: What would happen to a deep-sea diver if they didn't have a special pressurised submersible? Explain your answer.

Mount Everest - 8.8 km

Sea Level - 0 km

Deepest Ocean - -11 km

Q1: Why doesn't the density of water increase even at high pressures?