



# The ADVENTURES — OF — TALMA \* ALMA

— TODAY —

"CLIMATE IN SPACE"





1 BILLION LIGHT-YEARS FROM EARTH

In a cluster of galaxies far, far away...

ABELL 2597


A supermassive black hole is about to be hit by a big storm

Mathias, I have a question

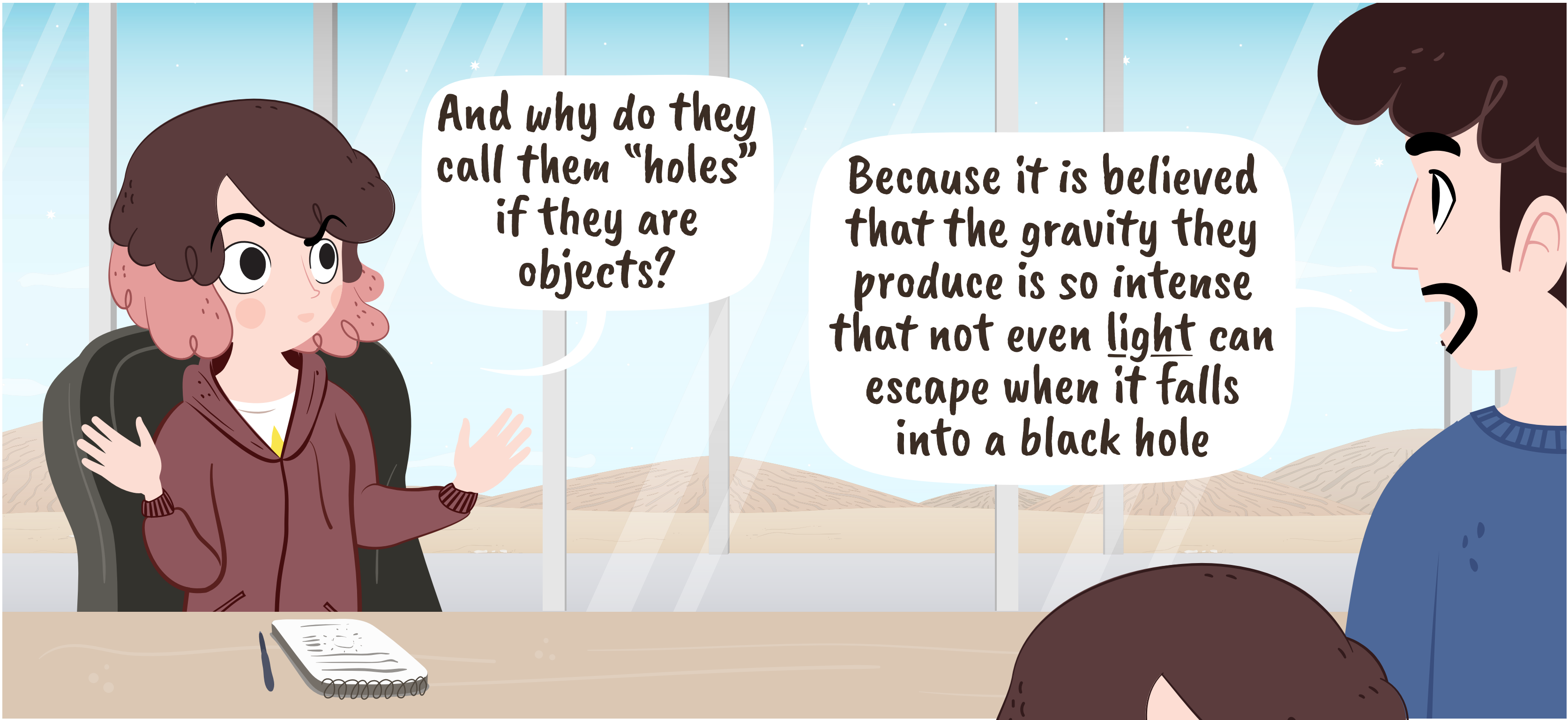
Yes, Talma?

What is a black hole?

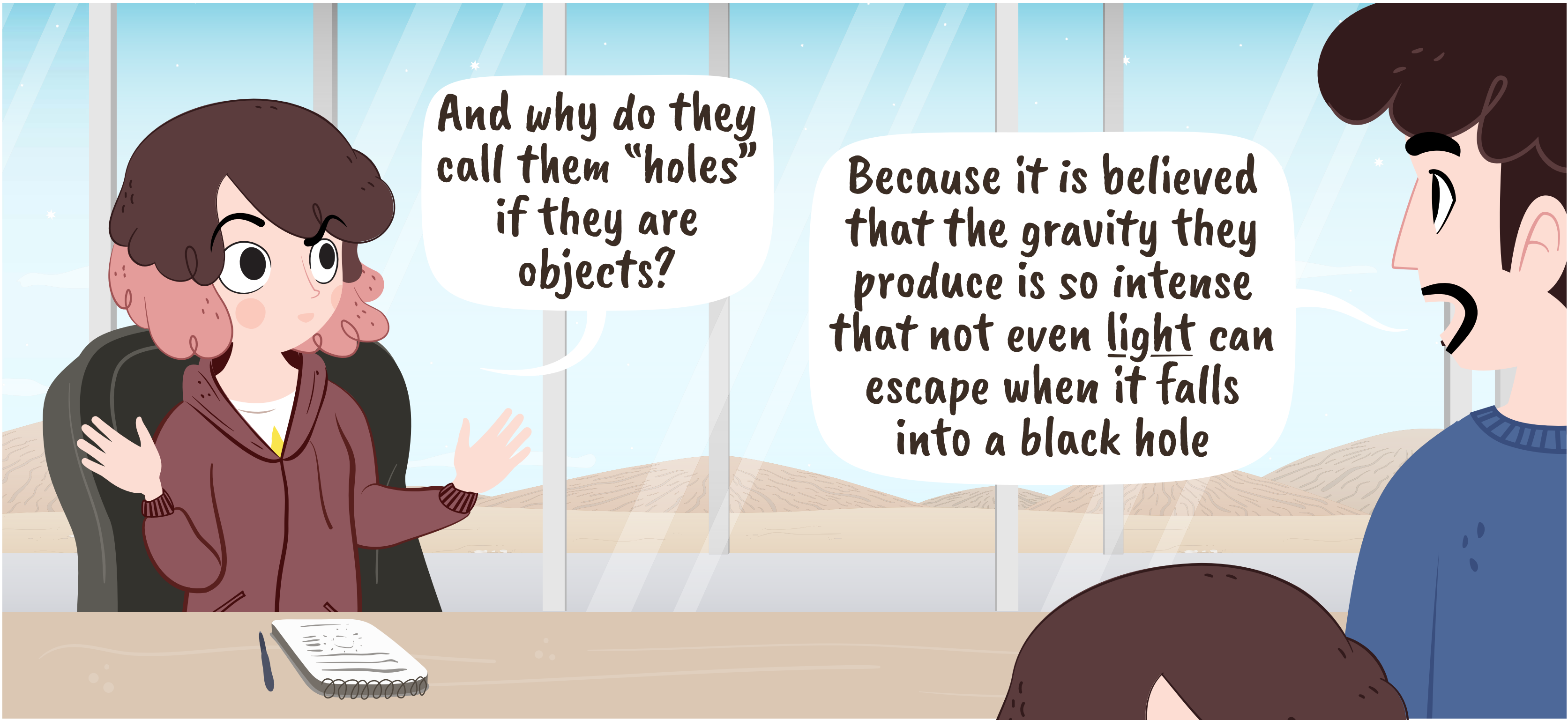


A man with dark curly hair and a mustache, wearing a blue sweater, is pointing his right index finger towards a large, swirling black hole in the dark purple and blue space. The black hole has a bright white center and concentric rings of light around it. A speech bubble is coming from him.

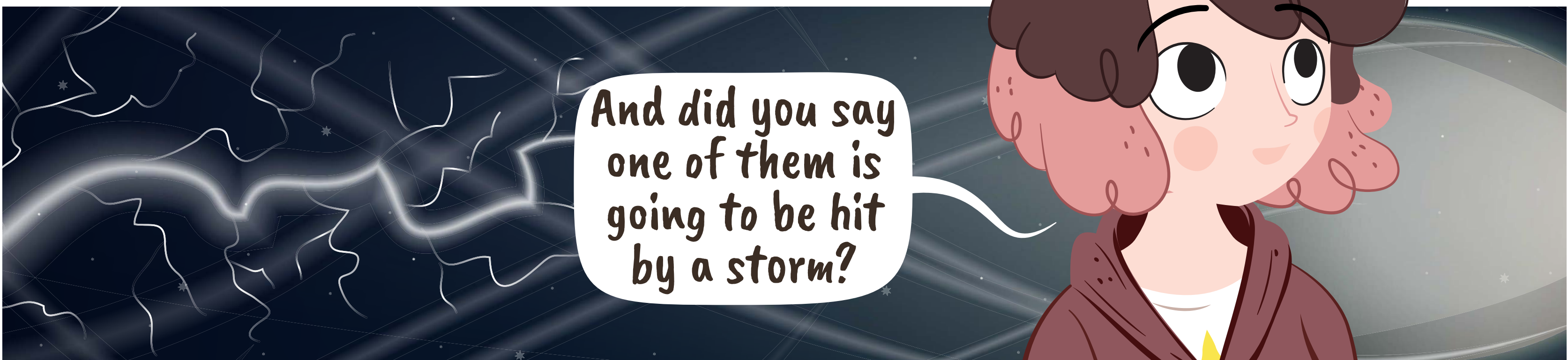
They are objects in the Universe that are so big and dense that their gravity attracts everything around them

A woman with dark curly hair and rosy cheeks, wearing a maroon hoodie, is sitting at a desk in a classroom. She has her hands raised and is looking towards a man standing on the right. The man has dark curly hair and a mustache, wearing a blue sweater. A speech bubble is coming from the woman. On the desk in front of her is a spiral notebook and a pen. The background shows a window with a view of a desert landscape.

And why do they call them "holes" if they are objects?


A man with dark curly hair and a mustache, wearing a blue sweater, is standing and looking towards the woman. A speech bubble is coming from him.

Because it is believed that the gravity they produce is so intense that not even light can escape when it falls into a black hole

A woman with dark curly hair and rosy cheeks, wearing a maroon hoodie, is looking towards the man. A speech bubble is coming from her. The background is a dark space with white lightning bolts.

And did you say one of them is going to be hit by a storm?





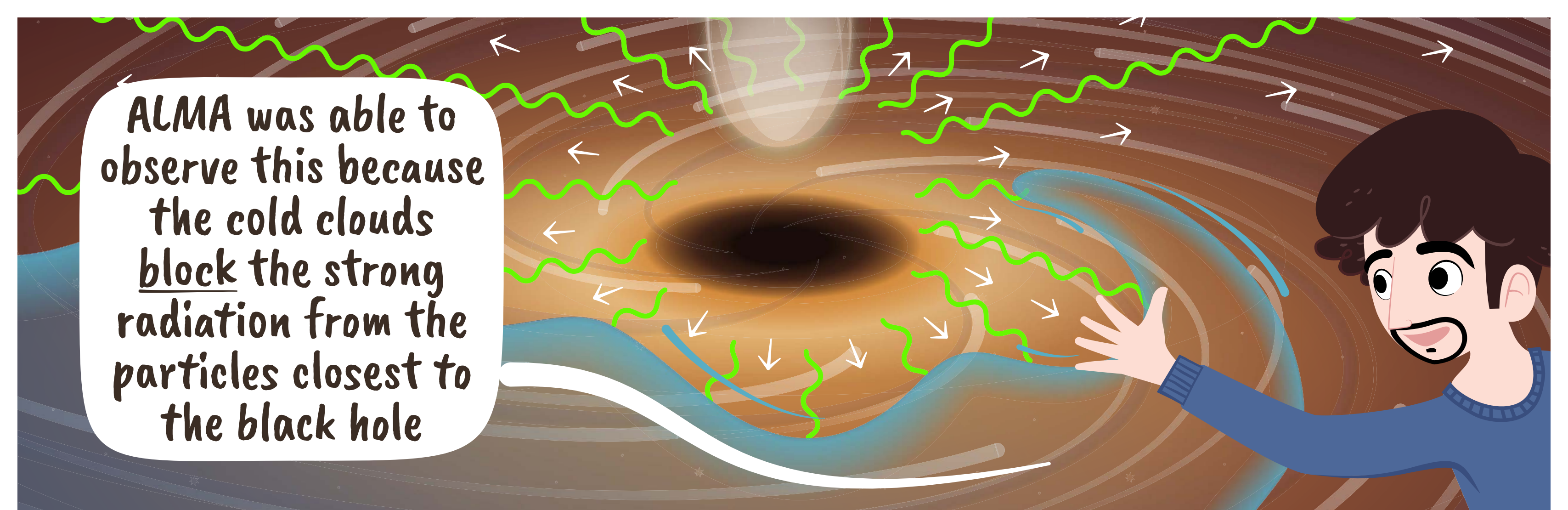
Yes. ALMA discovered that black holes can also devour streams of cold gas as though they were rain showers

Really?

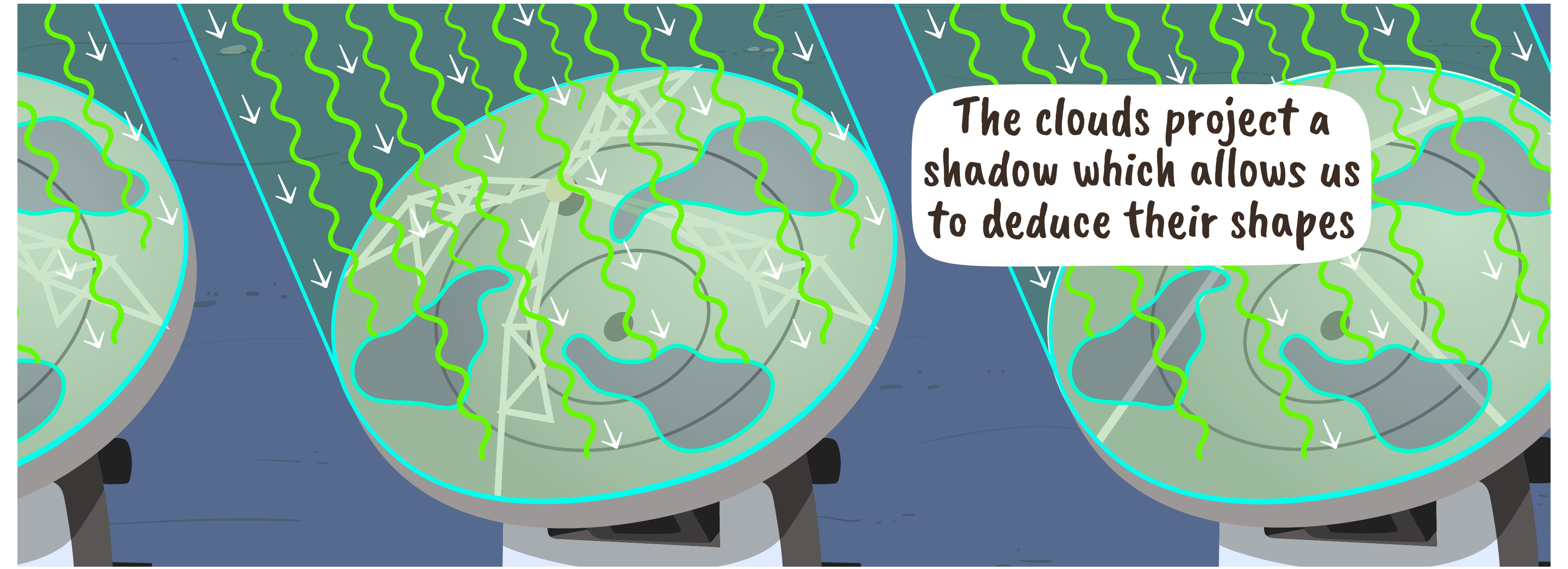
Yes. We detected 3 very cold gas clouds headed towards this black hole. Each of them is 1 million times more massive than the Sun!

That's going to be a huge storm! But how did you realize this?

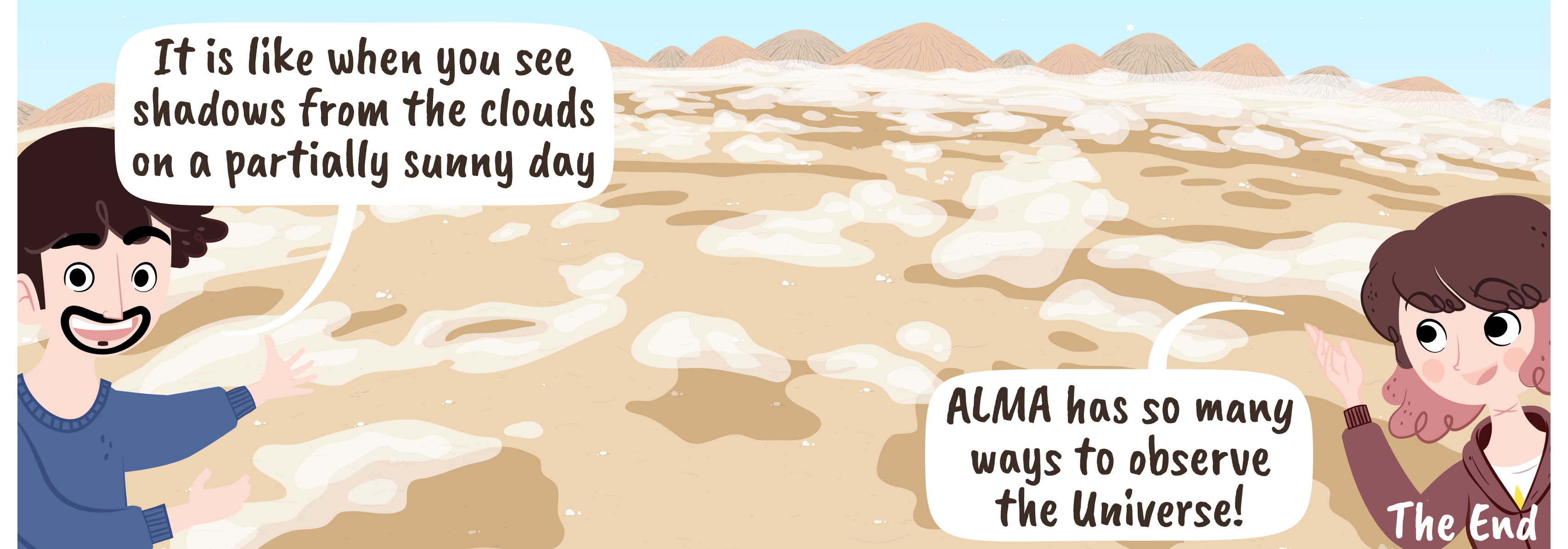




ALMA was able to observe this because the cold clouds block the strong radiation from the particles closest to the black hole



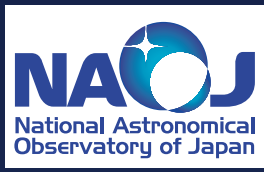
The clouds project a shadow which allows us to deduce their shapes



It is like when you see shadows from the clouds on a partially sunny day

ALMA has so many ways to observe the Universe!

The End



Script - Illustrations  
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