

ADVENTURES WITH **ROSIE & GIBBS** *the lost penguins*

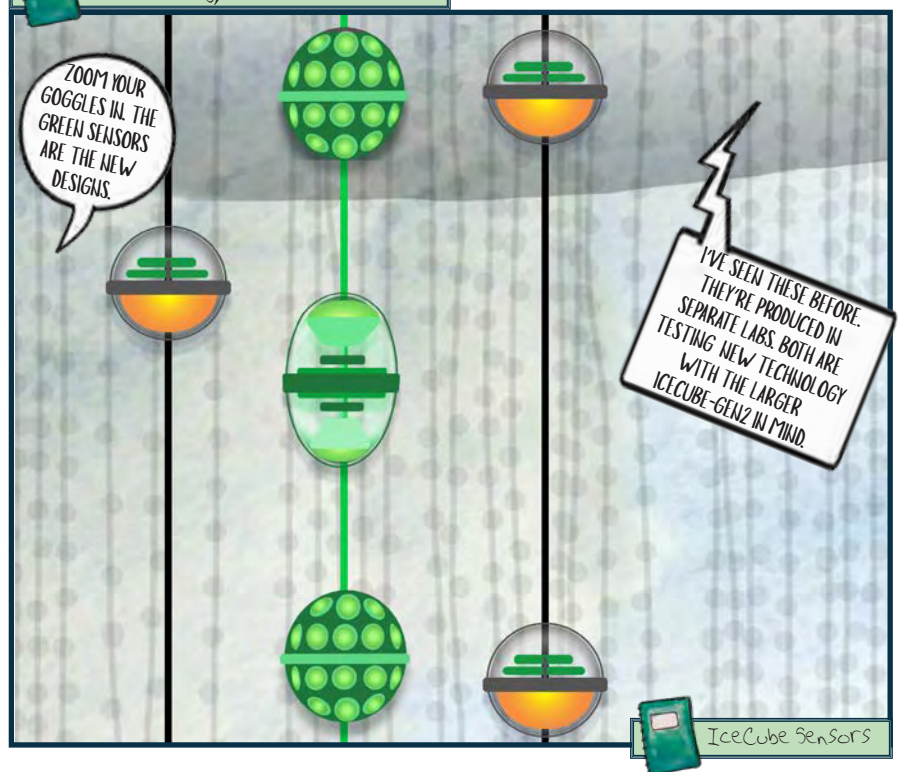
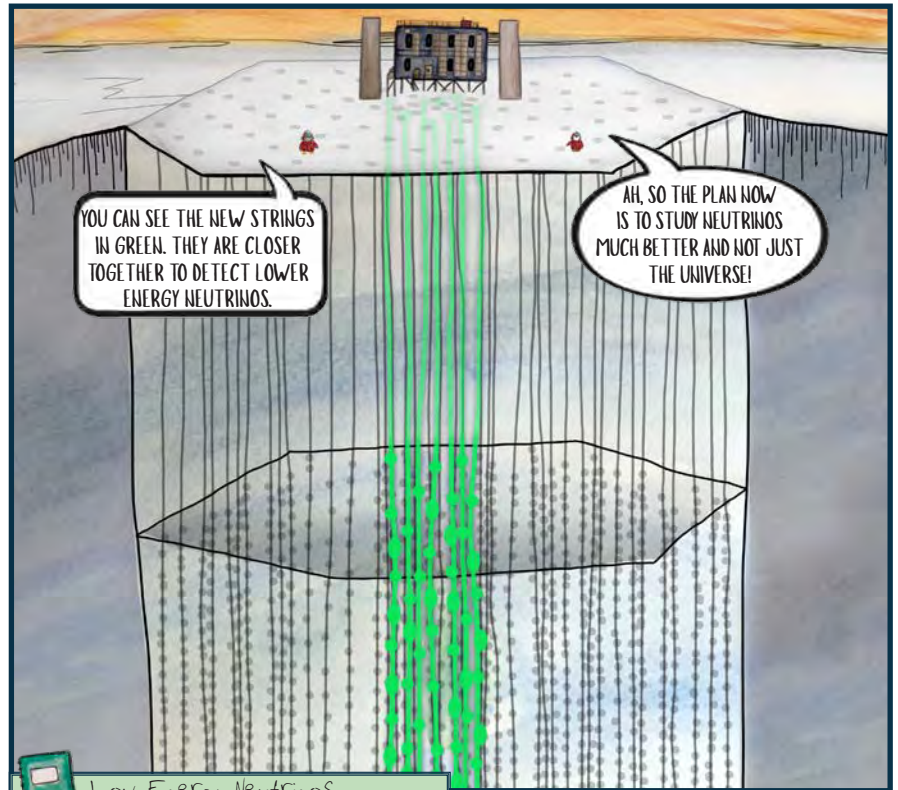
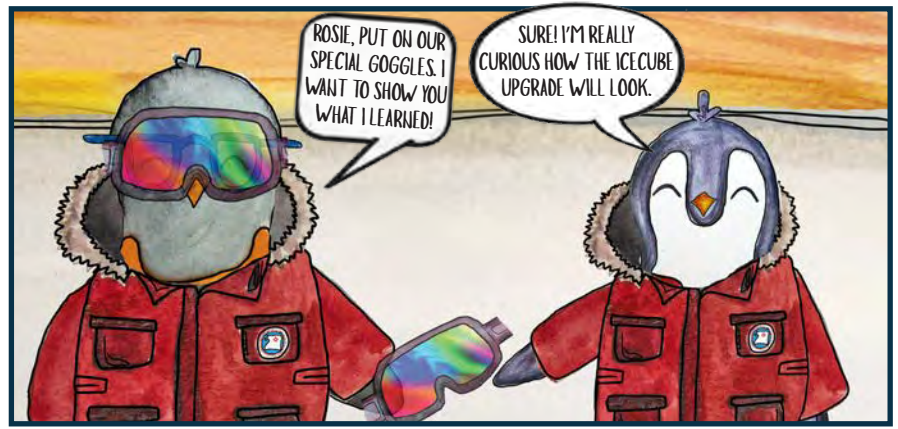


ADVENTURE 6: NEW EXCITEMENT ON THE HORIZON

MAY 2019

AS THE POLAR SUNSET BEGINS, ROSIE AND GIBBS ARE EXCITED TO LEARN ABOUT THE VERY FIRST EXTENSION OF THE ICECUBE NEUTRINO OBSERVATORY, CALLED THE ICECUBE UPGRADE. WITH A NEW AWARD FROM THE NATIONAL SCIENCE FOUNDATION, AND CONTRIBUTIONS FROM INTERNATIONAL PARTNERS IN GERMANY AND JAPAN, ICECUBE WILL BECOME AN EVEN MORE PRECISE DETECTOR THAN BEFORE!





Rosie's Discoveries

IceCube Upgrade

This IceCube extension will deploy 7 new strings in the middle of the current array and will have a total of 760 new sensors. Strings will go even deeper than before, down to 2600 meters. And the plan is to drill the 7 holes in one season. There's a second extension of IceCube planned, called IceCube-Gen 2. This one is to build a 10-times-larger detector and to look for very high energy neutrinos from outer space. I'm amazed, but if there's a team that can build it, it's the IceCubers.

New hot water drill

The drill is the most critical piece of equipment for this new project. It will use near boiling water to efficiently make holes in which to put the new sensors.

Low-energy neutrinos

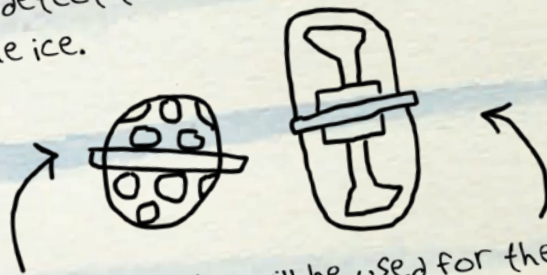
What IceCube calls low-energy neutrinos are in fact high-energy for other detectors. These are neutrinos created in Earth's atmosphere that can be used to study the properties of neutrinos themselves.

IceCube sensors

These are all light sensors that can detect the blue light produced by neutrino and other particle interactions in the ice.



This is the one used in the current IceCube.



These two will be used for the first time in the IceCube Upgrade. They will be produced in Germany and Japan.