

# He hammers at ice to spread the joy of physics

THE students react instinctively when an ice block gets a hammering, but they need not hold up their clipboards.

The block of ice is not going to crack.

The secret to its strength: toilet paper mixed into the water before freezing, which stops cracks short.

National University of Singapore physics lecturer Sow Chorng-Haur performs this experiment at his science demonstration laboratory to illustrate the properties of composite materials to students.

"We want them to learn science without any formula or equations. We want them to see the phenomena, experience the phenomena for themselves, so they will get curious and ask questions," said Dr Sow, 40.

The lab, which has about 60 experi-

ments, was set up in 2002 as part of an outreach programme to get students interested in science. So far, he has given demonstrations to about 3,500 people.

Dr Sow and his team are trying out another experiment to add to the collection: It involves "walking on water".

A particular liquid known as non-Newtonian fluid, which can be created by adding large amounts of starch to water, behaves like water when you slowly step into it. But when the force is much faster, such as when you punch it or run across it, the starch particles in the fluid stick together to behave like a solid.

Dr Sow said he hopes to load all his experiments on a double-decker to spread the joy of physics to more people.



**Dr Sow Chorng-Haur gives a science demonstration by hammering at an ice block which does not crack, thanks to bits of toilet paper added to the water before freezing.**