

PROFESSOR: Let us assume for a second that this cardboard box I hold in front of you is a ship. Let's say it's a box barge. It kind of looks like a barge. Now what I've done for you is drawn a water line. And what that is, is that is the level at which the barge will float on top of the water, assuming that it's going to float.

Now, if I take these scissors and create damage to the ballast section of this barge, what do you think would happen? You'd probably be right in saying that water is going to go through this hole that I've created, fill up in the barge, and that the barge is going to sink.

Now let's take that same scenario and do it again. So we're going to damage this bow portion right here. Now what do you think would happen? You'd probably say that, well, you just did that, so it's going to sink. Water's going to come in that hole, and it's going to sink the ship. But you'd be wrong.

What I did is I took these cardboard pieces right here and subdivided the vessel. And what that means is that when water comes in through this hole, it's just going to fill up this compartment. Now, what that's going to do is it's going to cause a trim condition in the barge, but it's not going to sink. And people on board are not going to be injured as a result of the vessel sinking.

Now, I show you this example as a segue into what naval architects do. One of the most important features of designing a ship is making sure it's not going to sink as easy as it sounds. And the way that you do that is through subdivision.