Lesson Plan 9

Physical science
(Forces and their effects)

Year Level: 3/4

Key learning areas: Science

Pushy air

Objectives

By the end of this lesson the student will:

-have a good understanding of air and some of its properties.

Background

Air is all around us pushing on everything. It pushes on our skin and on the bench top. The ruler has a relatively small surface area, so the air pushing down on the top of it is not enough to hold it in place when you hit it.

The newspaper has a large surface area. The force of the air acts over the whole area. The result: the air holds down the paper, which holds the ruler in place. Unable to lift quickly enough when you strike the overhanging part of the ruler, it has no option but to snap!

Fact File

Air pushes down on a folded sheet of a tabloid newspaper with a force greater than a one tonne weight!

Resources and actions

Bring in old rulers you don't mind breaking.

Ensure that the students are kept back from the table and well away from the path of the catapulted ruler.

Print off the student's worksheet and photocopy one for each student:
http://www.bom.gov.au/lam/Students_Teachers/Worksheet9.shtml.

Ask the students to carry out the activity from the worksheet then go over their results at the end of the class.

Questions and solutions

1. What do students expect to observe before each part of the experiment?
Students answers will vary.

2. Why do you think the ruler snaps during the second experiment?
The newspaper has a large surface area. The force of the air acts over the whole area. The result: the air holds down the paper, which holds the ruler in place. Unable to lift quickly enough when you strike the overhanging part of the ruler, it has no option but to ... snap!

Time

30 minutes

Assessment Task

Q2