

## SECTION 4: BERNOULLI'S BUBBLES

### LAB

### INTRODUCTION

For centuries, scientists have been interested in finding ways to make things fly. From the ancient Chinese, who made large kit-gliders, to Leonardo da Vinci, who designed a machine with flapping wings, humanity pursued the dream of flight.



In the 18<sup>th</sup> century, a scientist named Daniel Bernoulli discovered a scientific principle that now carries his name. Although he was working with liquids, the principle can be applied in many ways, and it became the basis for airplane flight many years after its discovery.

### ASSESSMENT ANCHORS ADDRESSED

- S4.A.1.1** Identify and explain the pros and cons of applying scientific, environmental, or technological knowledge to possible solutions to problems.
- S4.A.2.2** Identify appropriate instruments for a specific task and describe the information the instrument can provide.
- S4.C.1.1** Describe observable physical properties of matter.

### PURPOSE

In this activity, you'll introduce aerodynamics to your students by challenging them to devise the best ways to keep a bubble aloft. In this fun context you'll teach Bernoulli's principle and help explain how airplanes fly.

### MATERIALS

#### For the class:

- \*1 tube (7"-11" in length)      \*Newspaper
- Dishwashing liquid              Eyedropper
- Glycerin                              1 one gallon container
- 1 pie pan                              \*water
- Index cards

*Teacher provides items marked with \**