

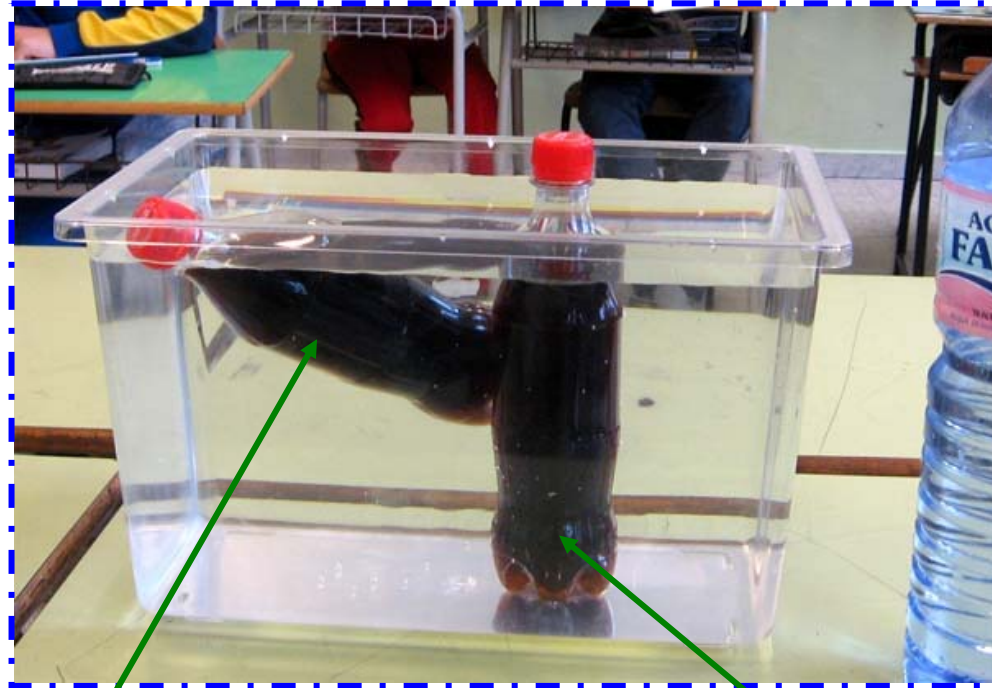
# Teaching Science in Europe

The role of the experiment in  
“Teaching Science”

# Coca-Cola or Coca-Cola light?

## List of materials

- Two ½ - litre plastic bottles without labels, one of them containing Coca-Cola and the Coca-Cola light
- Transparent container
- Water



floats

WHY?

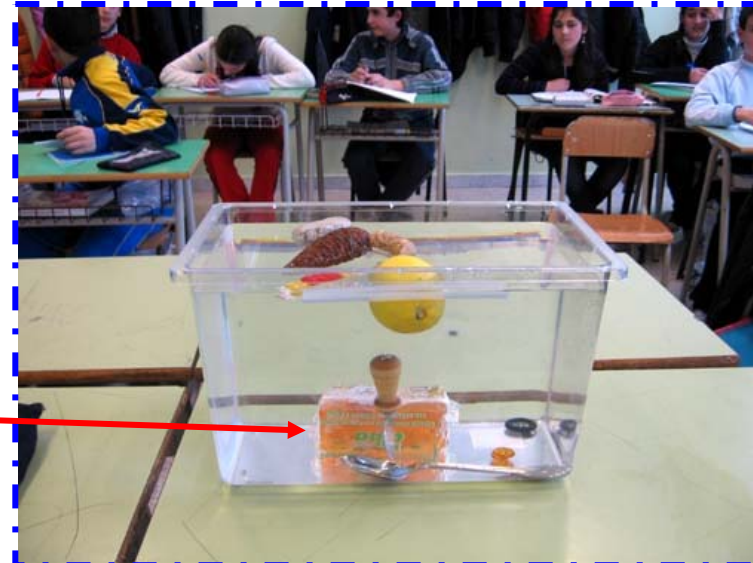
sinks

# SINKS or FLOATS?



FORECAST

EXPERIMENT



# SINKS or FLOATS?

*Student: Ferdinand*

<b>OBJECT</b>	<b>FORECAST</b>	<b>WHY?</b>	<b>EXPERIMENT</b>
Pinecone	Sinks	Heavy	Floats
Soap	Floats	Heavy & is big	Sinks
Pumice stone	Sinks	Heavy	Floats
Glue at hot	Sinks	Is spherical	Floats
Spon	Sinks	Heavy	Sinks
Lemon	Sinks	Is spherical	Floats
Cork	Floats	Is light	Floats
Cat cheese	Sinks	Heavy	Sinks
Button	Sinks	Is laundry	Sinks
Lego	Floats	Is light	Floats
Ambra stone	Sinks	Is smoll	Sinks

**Not always the forecast is confirmed by the experiment**

# Does the weight allow it to float?



The experiment doesn't confirm the idea that the heaviest object will sink.

List of materials:

- candle
- paperclip



# Does the volume allow it to float?



The experiment doesn't confirm the idea that the greatest object will sink.

List of materials:

- stone
- wood piece



*video*

# Does the shape allow it to float?



The objects of different materials sink or float independently of their shape

List of materials:

- spherical objects but of different materials



*video*

# WHY DO SOMETHINGS FLOAT WHILE OTHERS SINK ?

It doesn't  
depend on  
weight, volume  
or shape, but  
depends on

**DENSITY**

# What Is Density?

- Density is how heavy something is for its size
- Density is mass divided by volume or

$$D = m/v$$

Where **D** equals density, **m** equals mass and **v** equals volume

# Density water



Experiment		
Volume	Mass	Density
10 cm <sup>3</sup>	≈ 10 g	≈ 1g/ cm <sup>3</sup>
20 cm <sup>3</sup>	≈ 20 g	≈ 1g/ cm <sup>3</sup>
25 cm <sup>3</sup>	≈ 25 g	≈ 1g/ cm <sup>3</sup>

Water has a density of 1g/cm<sup>3</sup>.

Any objectd with a density greater than 1g/cm<sup>3</sup> will sink in water!

# Coca-Cola or Coca-Cola light?

Total density  $< 1\text{g/cm}^3$

Total density  $> 1\text{g/cm}^3$

Floats

Sinks

Coca Cola light  
not sugar

Coca Cola  
(it contains sugar)

532

552

weight

