

Vaporisation

Introduction

What happens when water boils? Where does the condensation on the mirror come from? This practical work will help understand the physical changes in water; it will demonstrate evaporation by boiling and the notion of pure and mixed substances.

Materials

Description	Quantity	Reference
Tooxy device	1	480 000
Thermometer sensor	1	482 204
Heating mantle	1	701 078
Flask 250ml	1	713 369
Heat resistant gloves	1	150 006
Modumontage ® stand	1	701 294
Demineralized water 1L	1	107 340

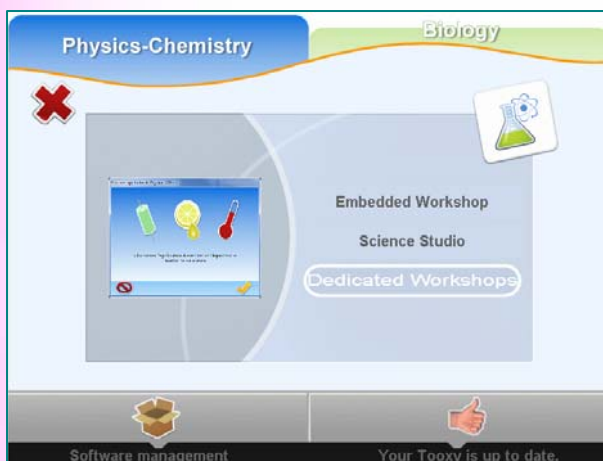
Experimentation



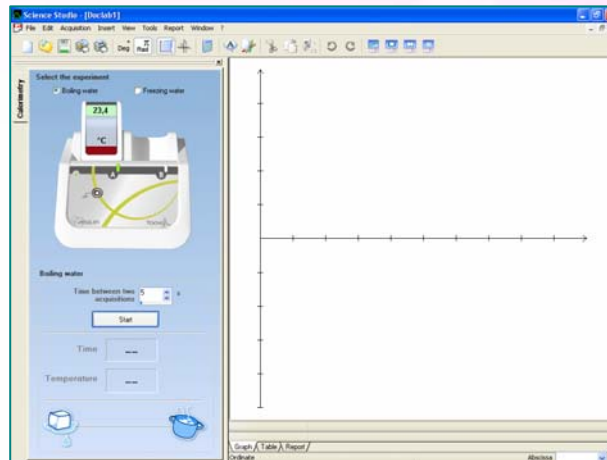
Wear heat resistant gloves when handling glassware

BOILING WATER - C.A.E. MODE

- Connect Tooxy to the computer
- ☞ Choose "*Dedicated Workshops*"
- ☞ Choose "*calorimetry module*", confirm



- ☞ Select "*Boiling water*"
- ☞ The "*Time between two acquisitions*" is 10 sec

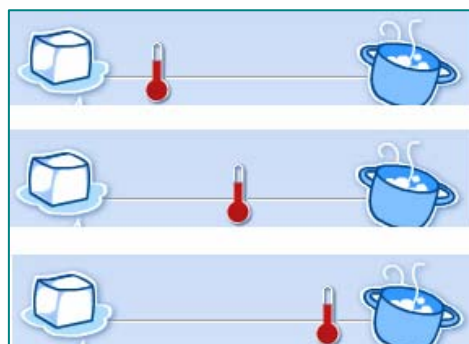


- Place 250 ml of room temperature distilled water in the flask
- Place the flask on the heating mantle
- Place the temperature probe into the flask ensuring that it doesn't touch the sides

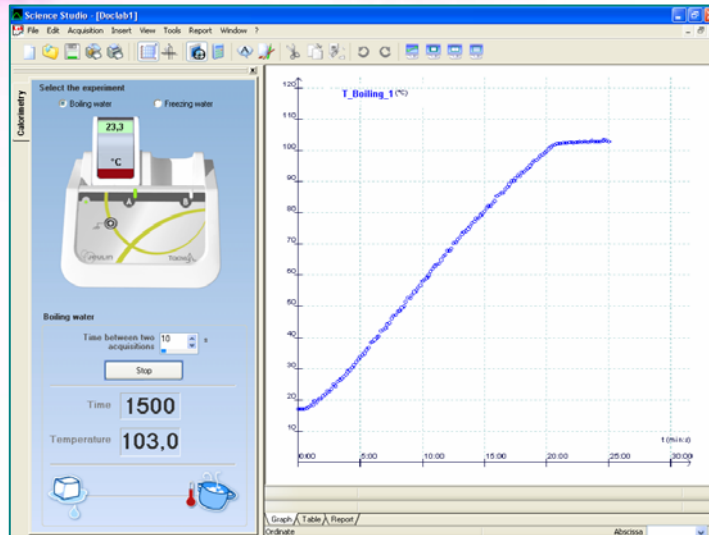


☞ Press "*Start*", the experiment begins

- Turn on the heating mantle
- The "*thermometer*" cursor moves progressively as the temperature increases



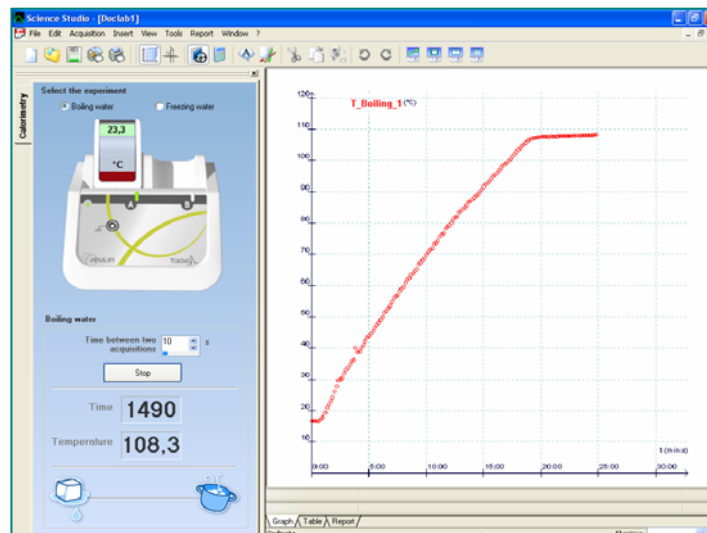
- What do you notice on the internal wall of the flask?
 - What can you see appearing in the flask between 95°C and 100°C?
- ☞ Once the curve reaches a plateau, press "Stop"



- Comment on the resulting curve
- What do you notice?
- What change has the water undergone?
- At what temperature does water boil?

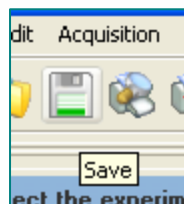
BOILING SALT WATER - C.A.E. MODE

- Prepare a highly saline water solution (about 1 part of salt to 3 parts water)
 - Repeat the previous procedure
- ☞ The "Time between two acquisitions" remains the same 10 sec
- ☞ Press "Start", the experiment begins
- ☞ Once the curve reaches a plateau, press "Stop"



- Comment on the resulting curve
- What do you notice?
- Compare the two curves obtained, what can be said about the boiling temperature?

Note: Each of the curves obtained can be saved and archived



Conclusion

Complete:

Water passes from a liquid to gaseous state at a temperature of..... °C

This change in state corresponds to the of the water, it occurs at a constant temperature

A pure substance has a boiling temperature (vaporization) from that of a mixed substance.

Furthermore, a mixture does not boil at a temperature