

## RESPIRATION IN AIR

### INTRODUCTION

The application *Respiration* can carry out an experiment demonstrating how a living being takes in oxygen ( $O_2$ ) and releases carbon dioxide ( $CO_2$ )

This manipulation can be carried out in air (using  $O_2$  and  $CO_2$  sensors) or water ( $O_2$  sensor only)

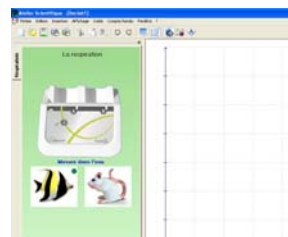
### MATERIELS

Description	Quantity	Reference
Tooxy console	1	480000
Air / Water oximeter sensor	1	482106
$O_2$ probe	1	453052
$CO_2$ sensor – air meter	1	482107
Animal respiration chamber	1	453066



### EXPERIMENTATION

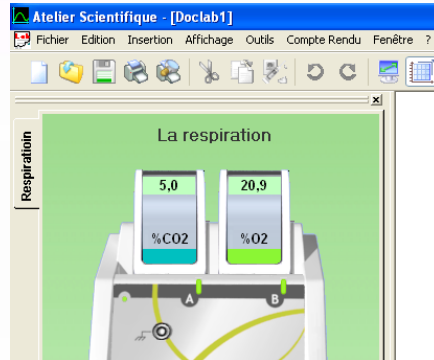
- Connect your Tooxy to your computer
- Select 'Biology' in the top right corner
- Chose 'dedicated workshops'
- Chose 'animal respiration'



Select the mouse



- **Connect the O<sub>2</sub> and CO<sub>2</sub> sensors:** they appear on the screen.



- **Sensors set-up**

### Oxymeter sensor and O<sub>2</sub> probe:

O<sub>2</sub> probe : see instructions sheet

Oxymeter sensor:

Make sure that the cursor points to 'Air' thanks to the orange button.



The O<sub>2</sub> concentration in the air is 20.9%, so press the small brown button until the cursor above 20.9 % is blinking, then turn the big brown button until you get 20.9 % and press briefly on the small button.

See instruction sheet for further information



### CO<sub>2</sub> sensor:

The CO<sub>2</sub> probe is linked to the sensor, and works only in air.

A 12 V external power supply is required and provided.

A 10 minutes warm up time is required before use. An arrow blinks above the small sandglass during this period.



A small arrow points to « probe OK » when the sensor is ready.

- **Experience Setting**

Fill up with mealworms the animal respiration chamber and screw the cap.

Insert O<sub>2</sub> and CO<sub>2</sub> probes in the appropriate holes and plug the other.

Let acclimate the probes a few minutes.

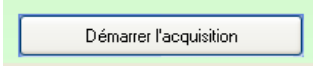


- Acquisition parameters

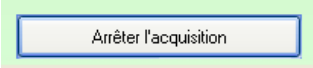
Everything is pre-configured in the application *respiration*

- Data acquisition

Click on

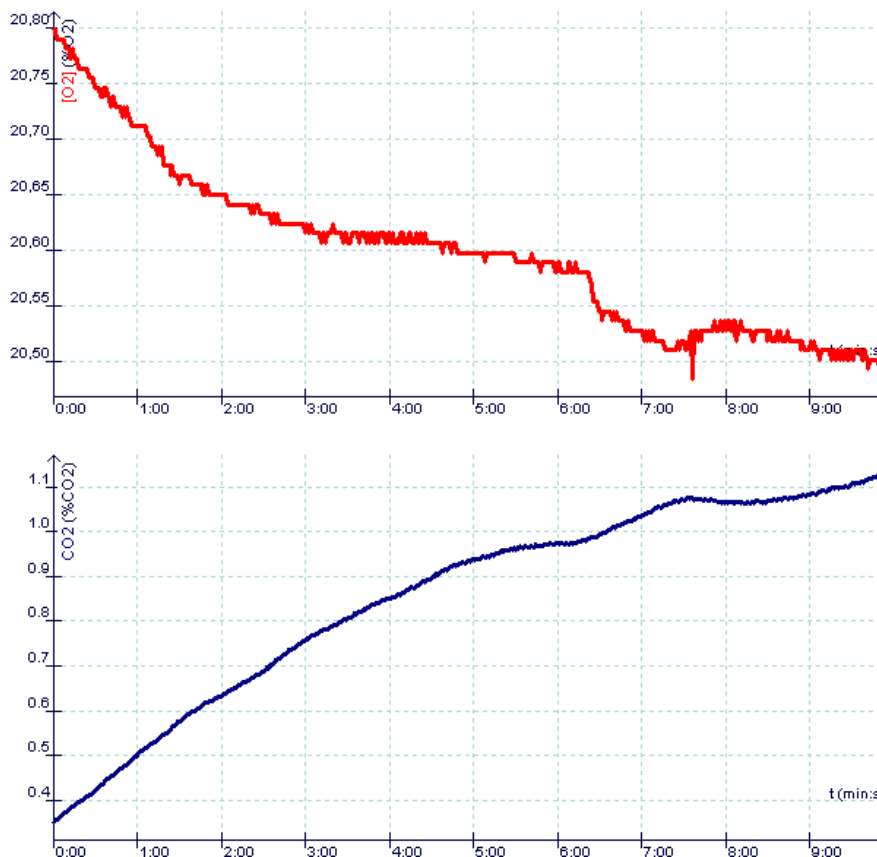


to start the acquisition and on



to stop it.

**CONCLUSION :**



We observe that, with the presence of mealworms in the chamber, O<sub>2</sub> level decreases and CO<sub>2</sub> level increases.