

Our scientific workshop



**Water tests in
Plougastel-Daoulas, the Elorn river and Brest
harbour
November 2013**



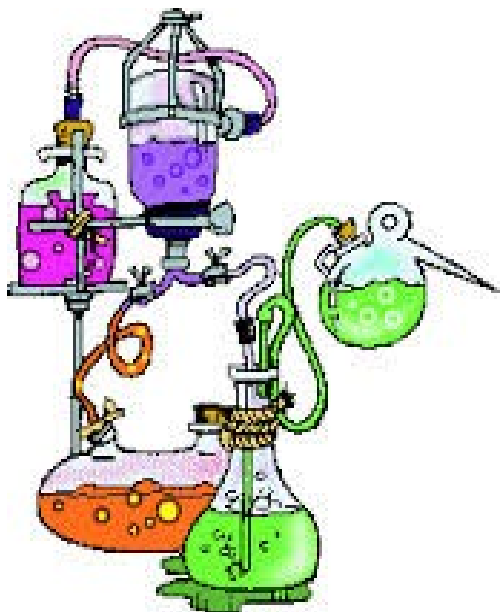
Éducation et culture
Éducation et formation tout au
long de la vie
COMENIUS

Sainte Anne's school - PLOUGASTEL-DAOULAS

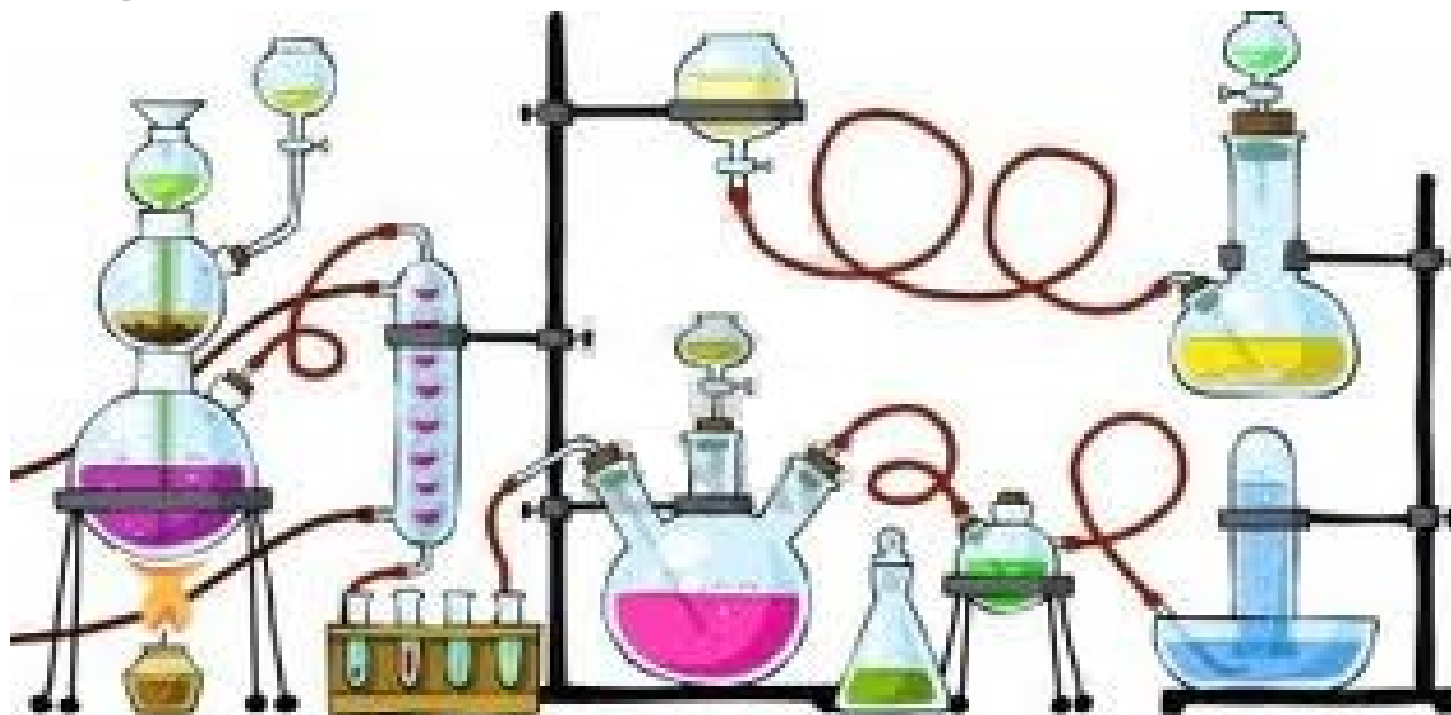
THE CONTEXT



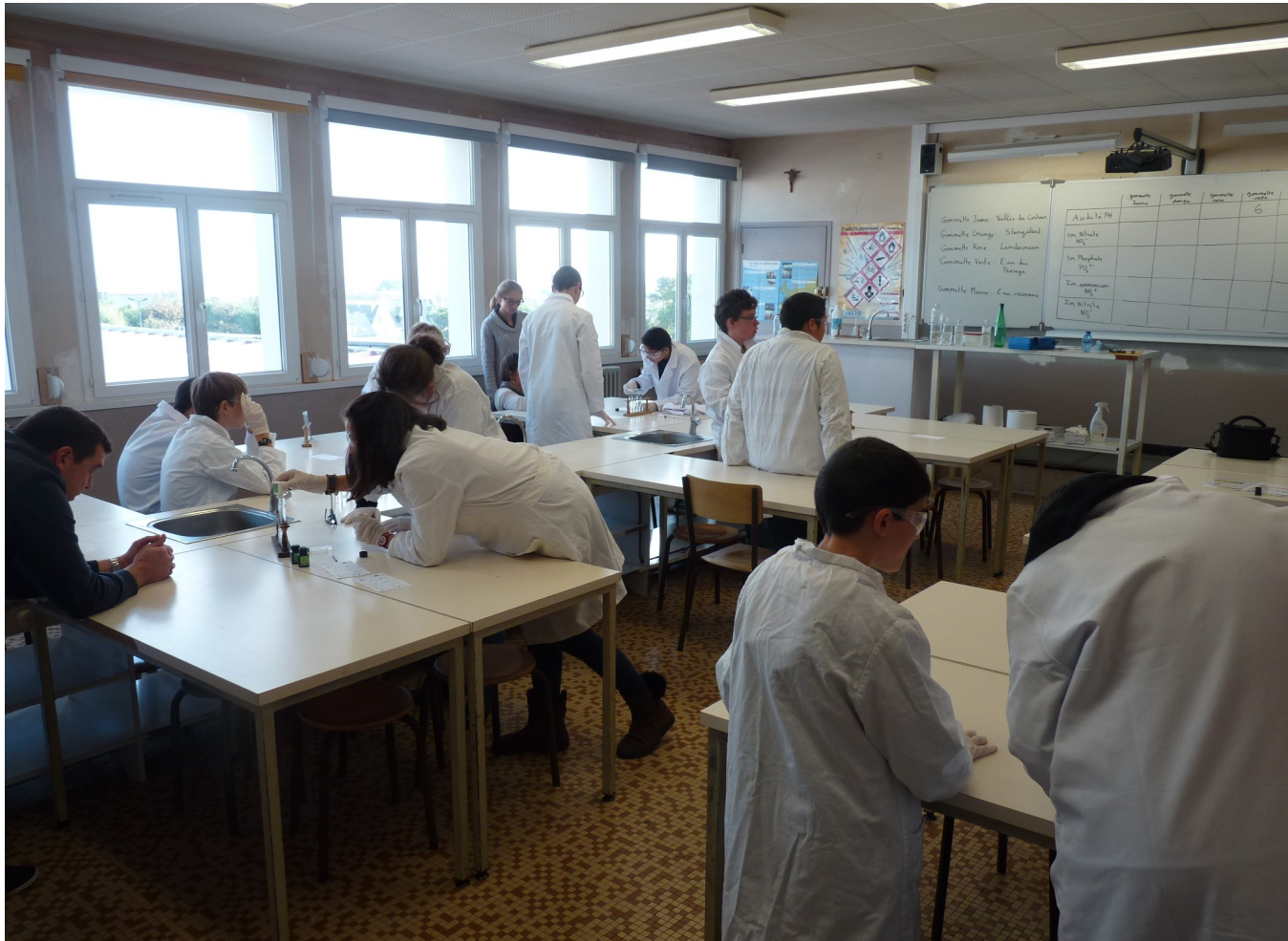
Within the frame of our COMENIUS project « Mare Nostrum » and in close relation with the Physics curriculum, pupils in year 10 have analysed water samples coming from different local places. Then, we have measured the concentration in nitrite, nitrat, ammonium and phosphat ions. Finally, we've measured the pH to controle the quality of these waters.



The Chemistry Lab



The chemistry lab



The tests were made in the Physics lab.
Like scientists, we had to wear a white
coat, gloves and glasses.

The chemistry lab



Quentin

Téo

Ewen

We split into 5 groups.
Each group had to test one ion or the pH.

The chemistry lab



Quentin

Téo

Ewen

We split into 5 groups.
Each group had to test one ion or the pH.

Sylvain

The chemistry lab

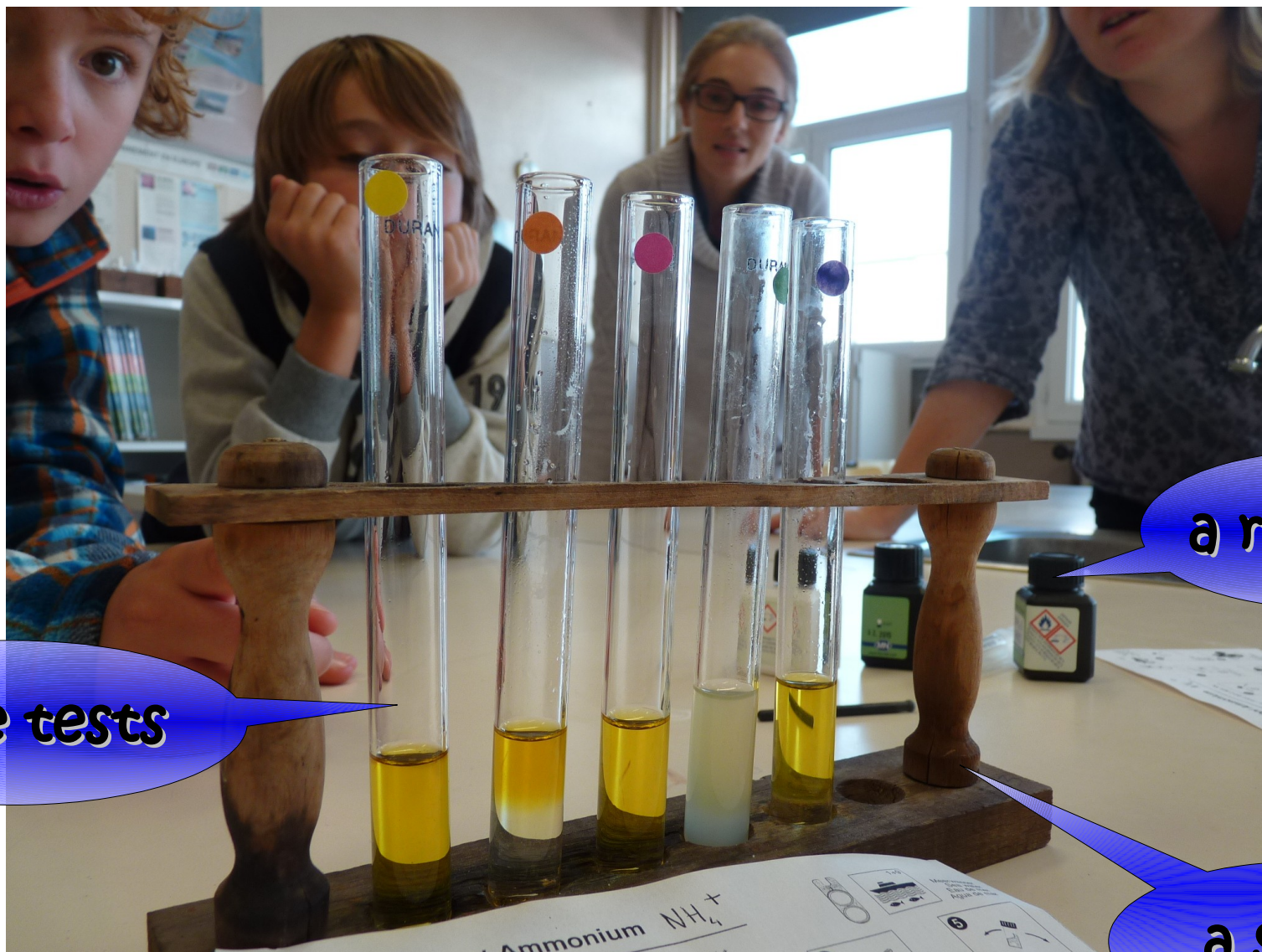


We wrote all the results of the tests on the board.



The scientific equipment



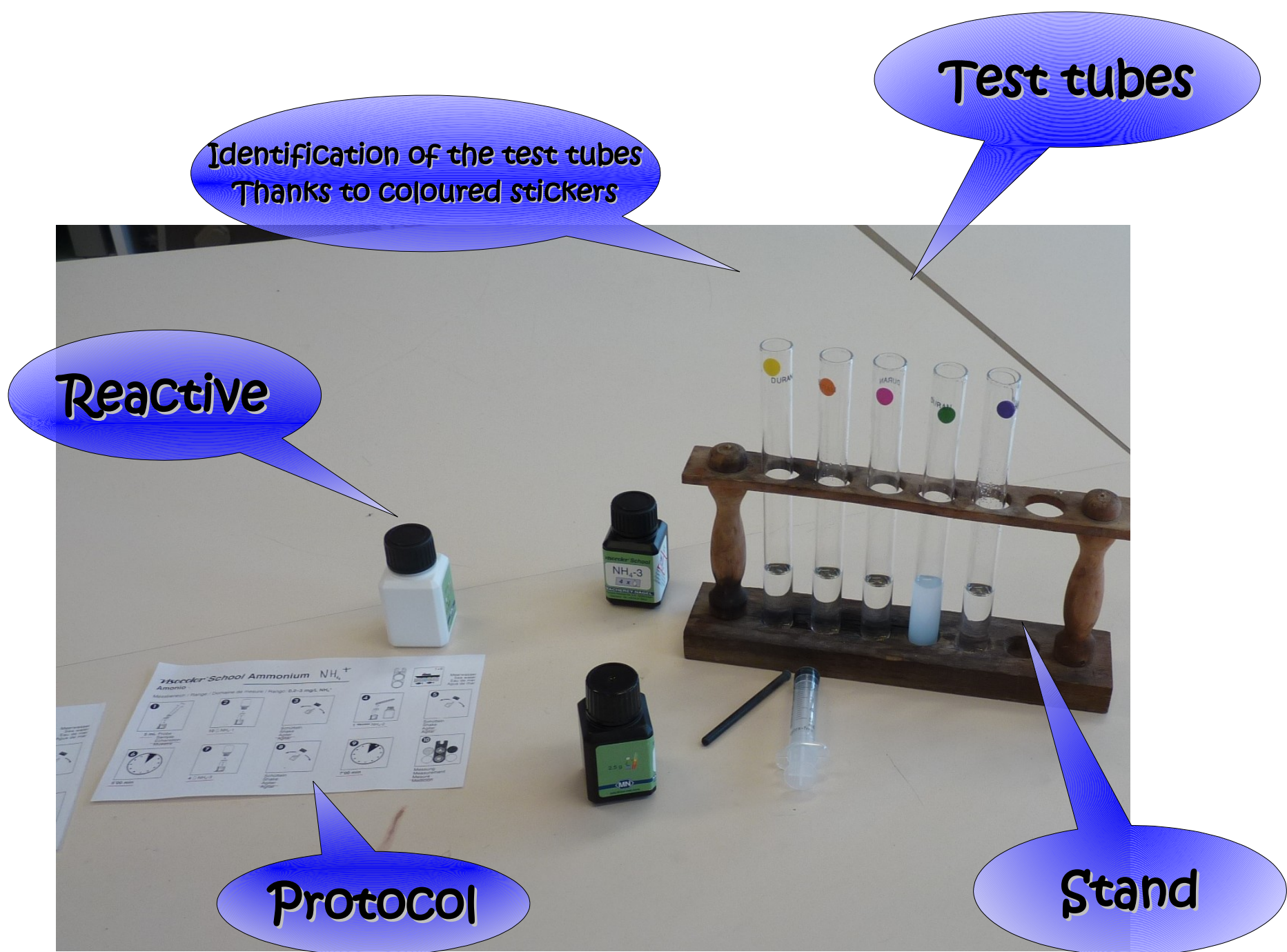


Tube tests

a reactive

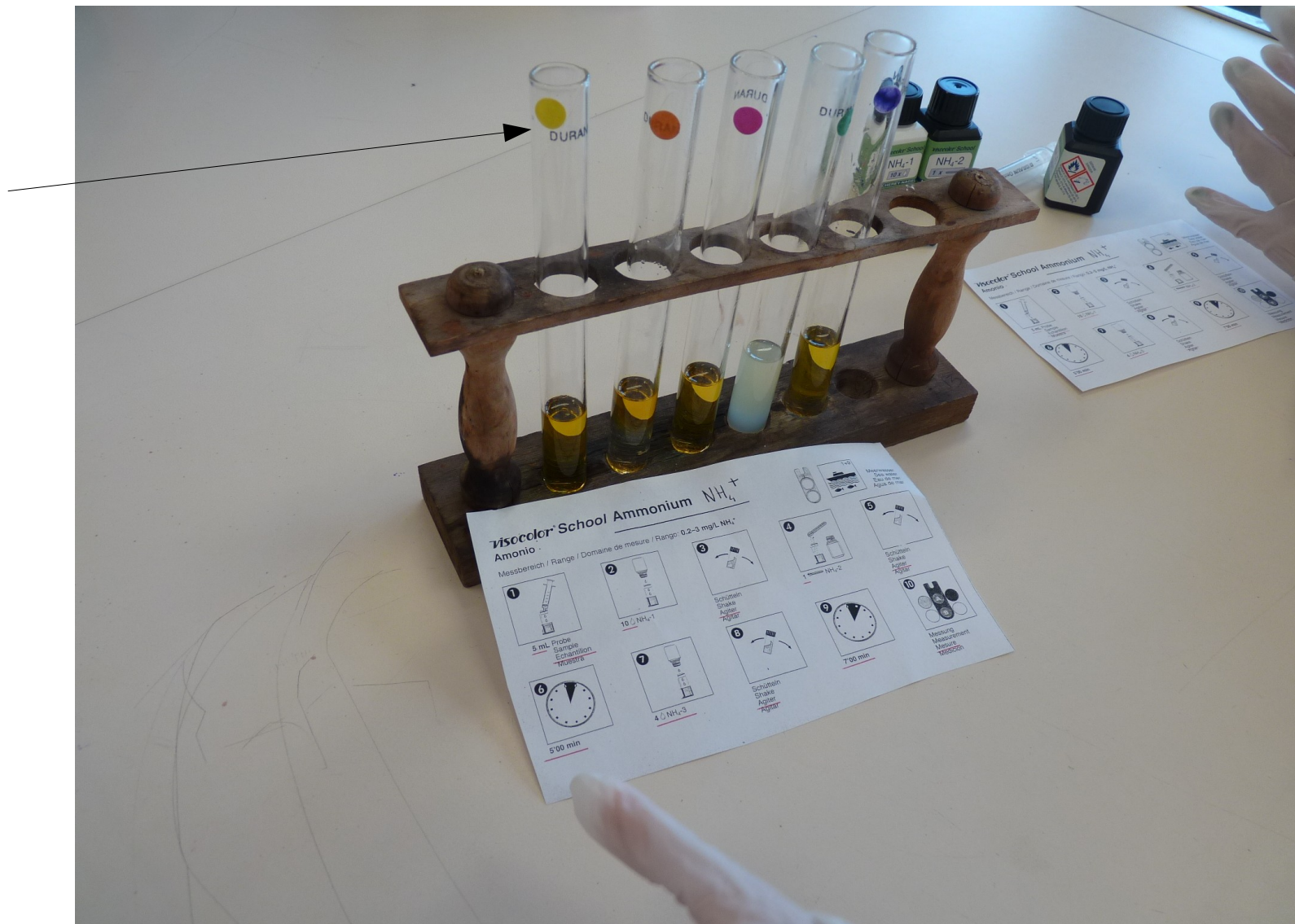
a stand

To do the tests we used specific chemistry materials



We had to follow a strict protocole to test the water samples

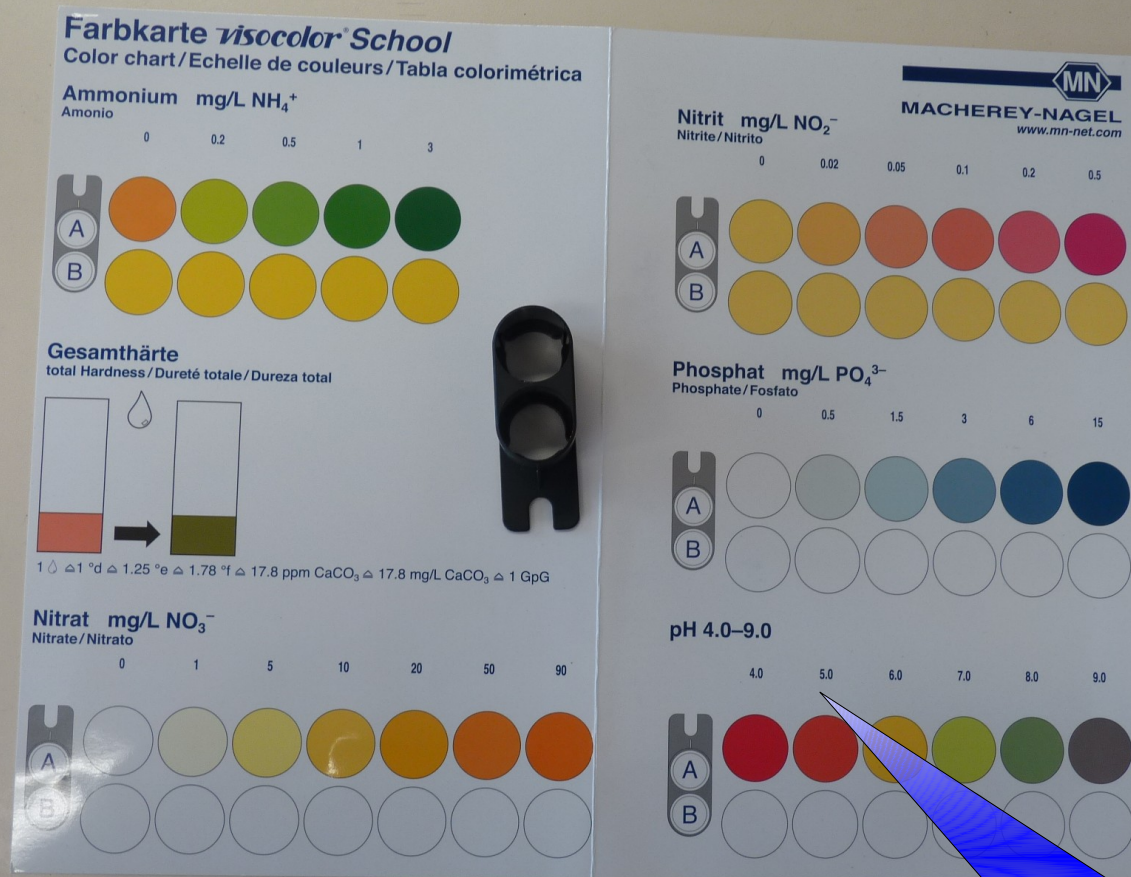
The tools



We stuck coloured stickers on the tubes to identify the samples



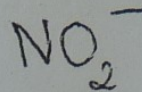
We also used a colour scale to measure the chemical substances concentration



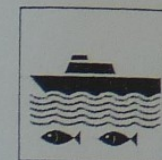
A colour chart to check the result

Here is the colour scale

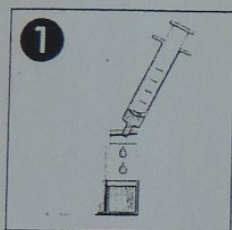
visocolor® School Nitrit
Nitrite/Nitrito



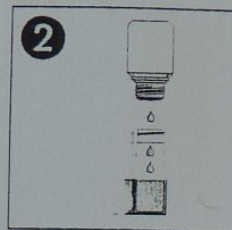
Messbereich / Range / Domaine de mesure / Rango: 0.02–0.5 mg/L NO_2^-



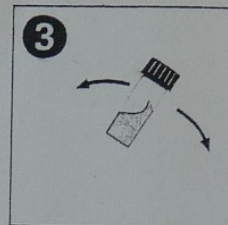
Meerwasser
Sea water
Eau de mer
Agua de mar



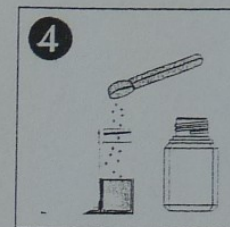
1
5 mL Probe
Sample
Echantillon
Muestra



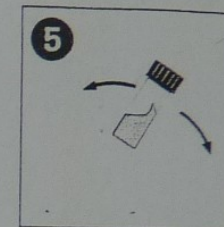
2
4 NO_2^-1



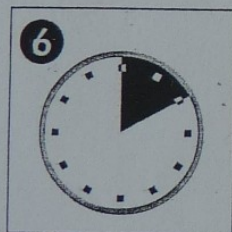
3
Schütteln
Shake
Agiter
Agitar



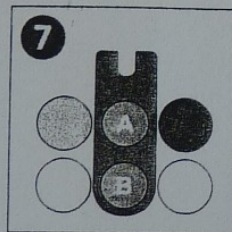
4
1 NO_2^-2



5
Schütteln
Shake
Agiter
Agitar



6
10'00 min



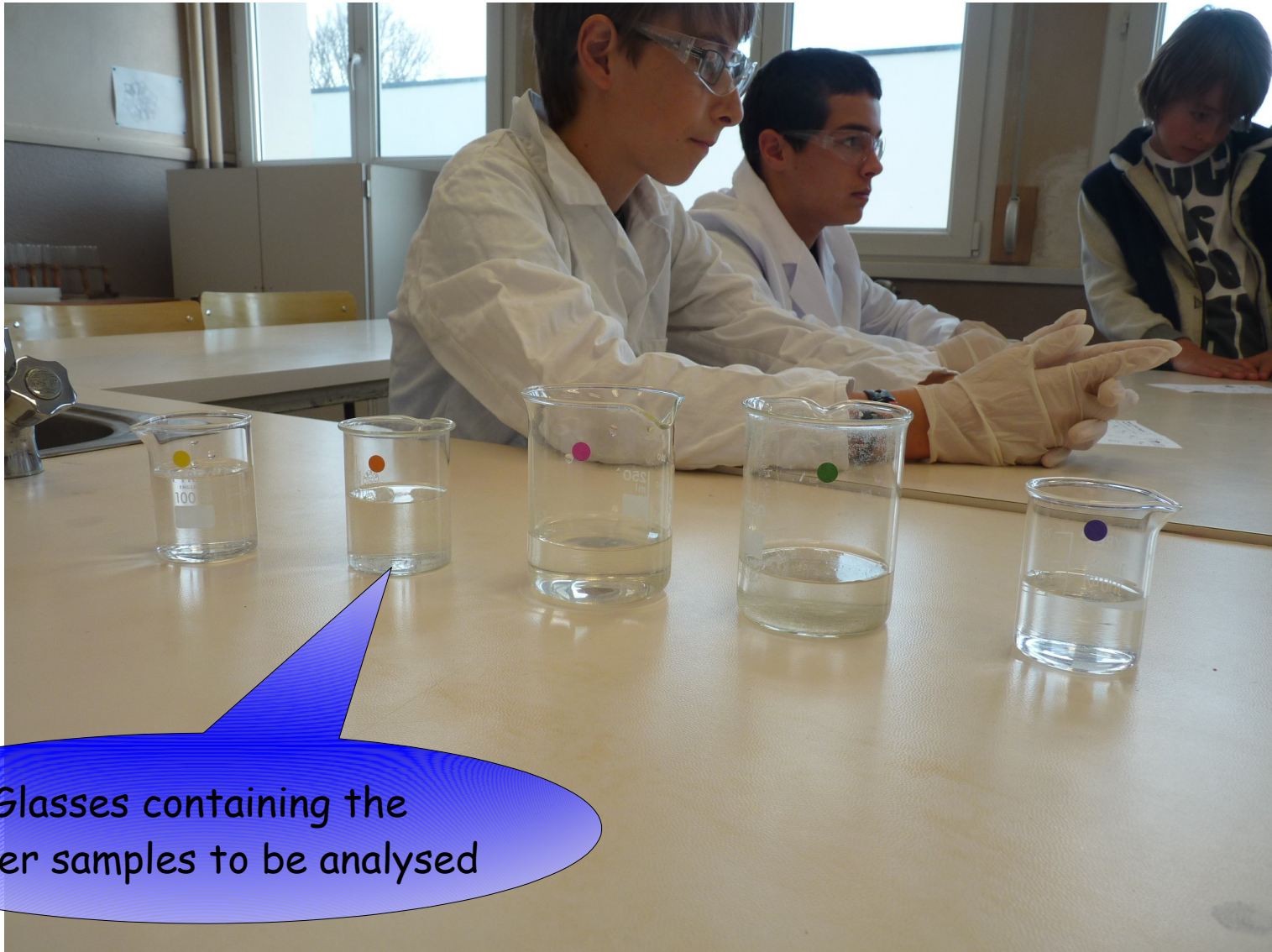
7
Messung
Measurement
Mesure
Medición

This is an example of an experimental protocol

pH paper

pH paper

The equipment

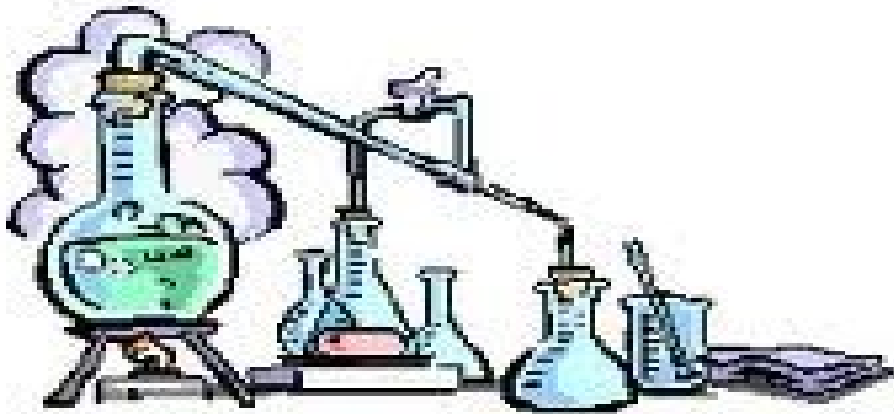


Glasses containing the water samples to be analysed

We took 5mL from each sample with a plastic syringe



Let's do the tests !



Nitrite ions tests



We added 4 drops of NO₂-1 in each sample

Nitrite ions tests



Ammonium ions tests



Ammonium ions tests



Ammonium ions tests



Marianne

Lucie

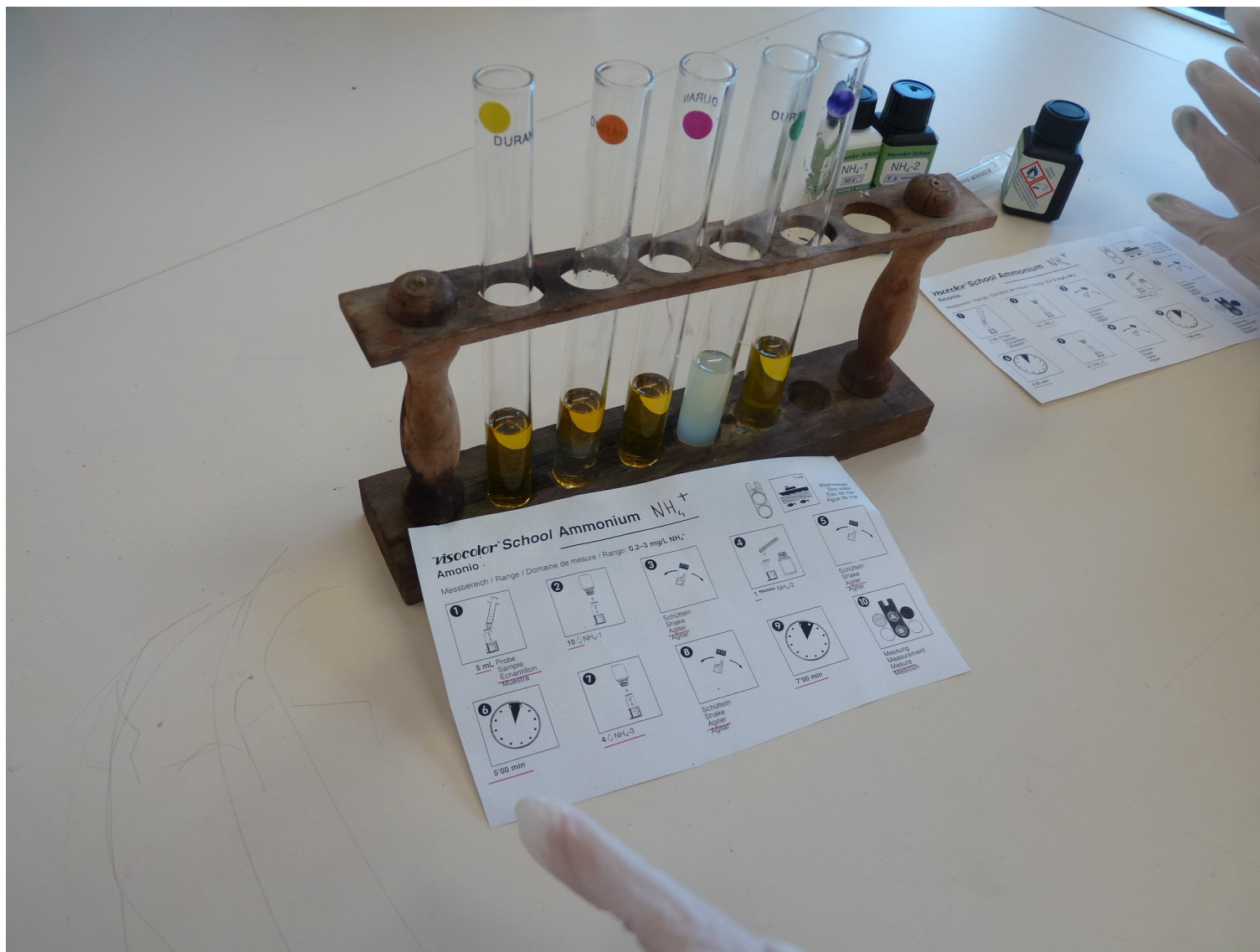
Mr Héronneau
Technology
teacher

Ammonium ions tests

Mrs Fave
History &
Bretton
teacher



Ammonium ions tests



pH test



Quentin

Maël

Mrs Lafont
Biology teacher

pH test



Nitrite ions tests



Nitrite ions tests

Andrès

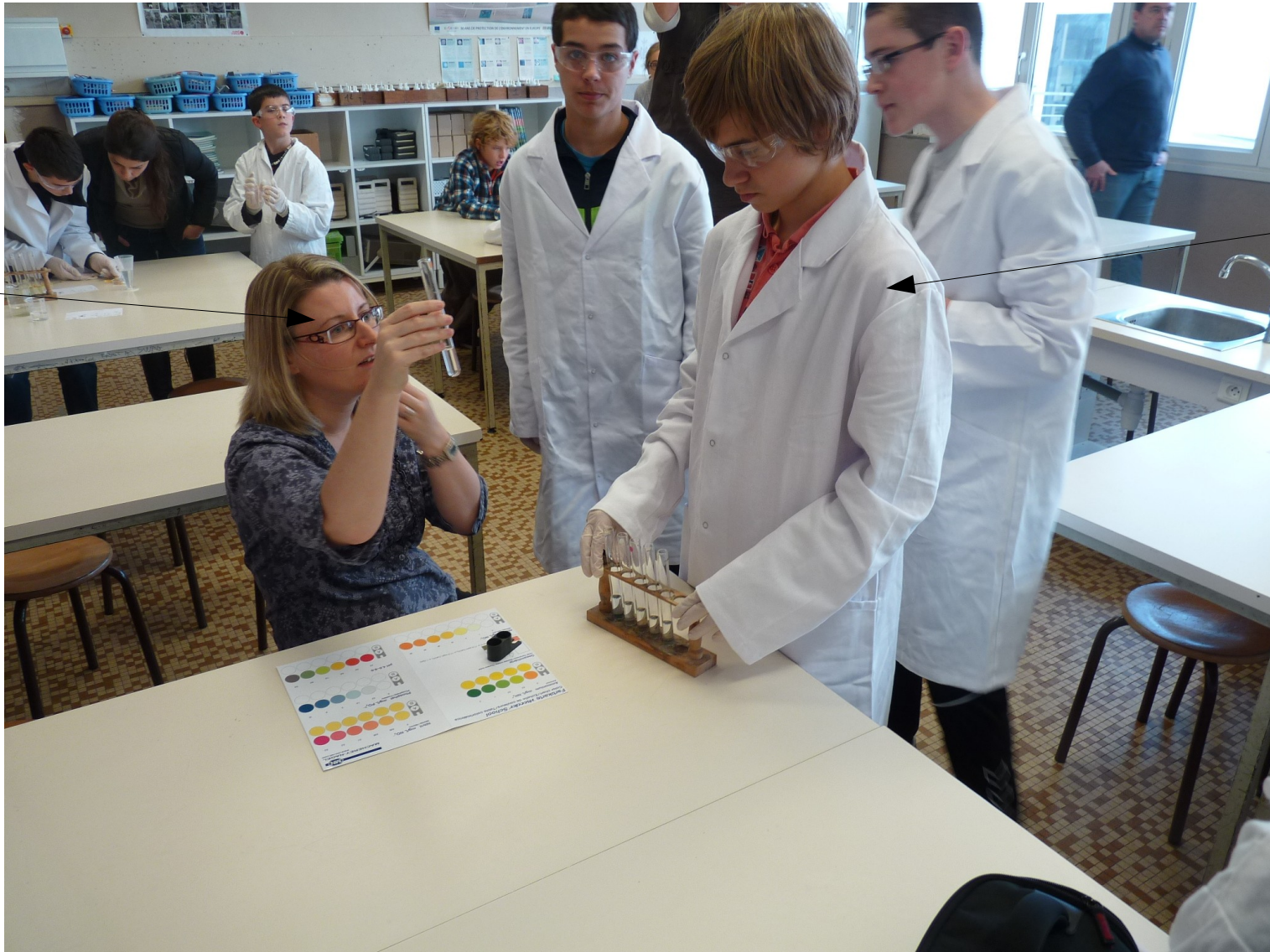
Valentin



Colour scale measurement

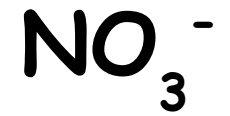
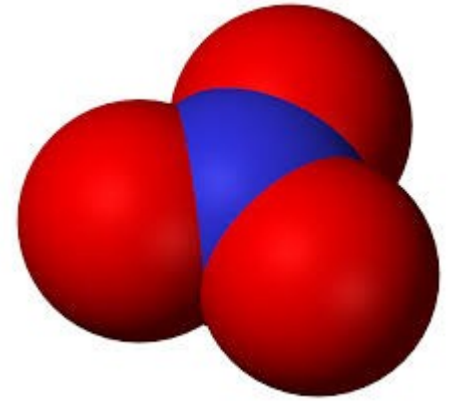
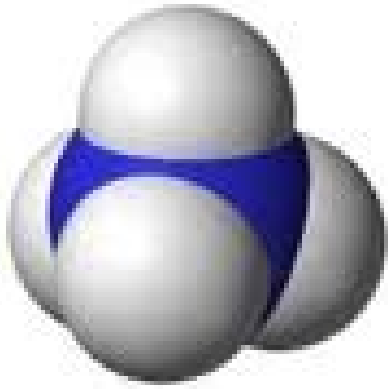


Phosphat ions tests

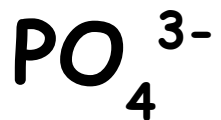
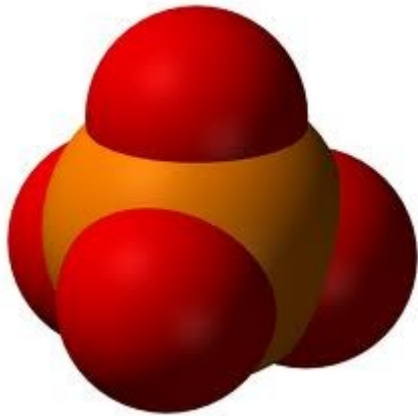


Mrs Karpus
Physics
teacher

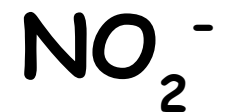
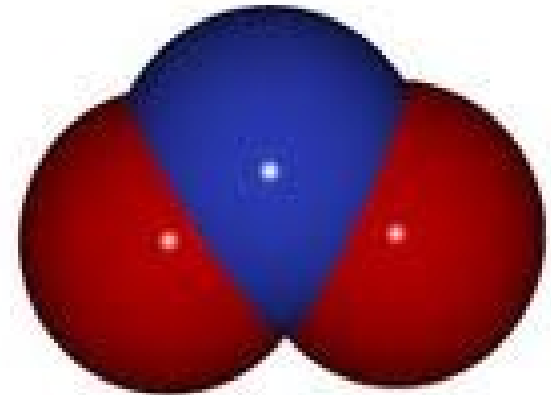
Sylvain



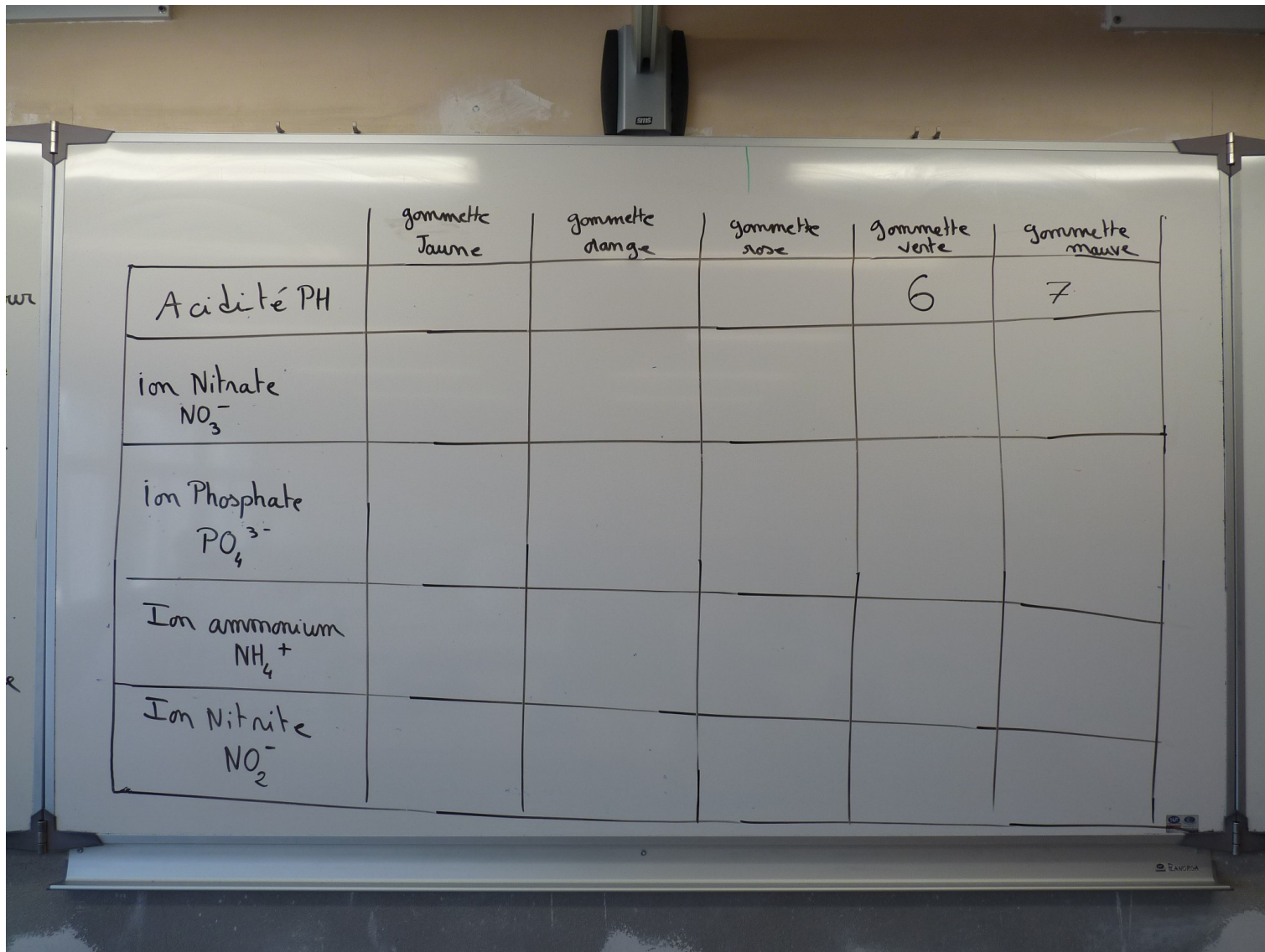
Tests results



pH



Here are the results we've obtained



	goumme Jaune	goumme orange	goumme rose	goumme verte	goumme mauve
Acidité PH				6	7
ion Nitrate NO_3^-					
ion Phosphate PO_4^{3-}					
Ion ammonium NH_4^+					
Ion Nitrite NO_2^-					

One by one we wrote our results in the chart


Tests results

	goulette Jaune	goulette orange	goulette rose	goulette verte	goulette mauve
Acidité PH	7	7	6	6	7
ion Nitrate NO_3^-	10 mg /L				5 mg /L
ion Phosphate PO_4^{3-}					
Ion ammonium NH_4^+					
Ion Nitrite NO_2^-		0,05			

Tests results



Tests results



	gommlette jaune	gommlette orange	gommlette rose	gommlette verte	gommlette mauve
Acidité PH	7	7	6	6	7
Gommlette Jaune: Vallée du Costour	10 mg /L				5 mg /L
Gommlette Orange: Stang		0,5 mg/L			
Gommlette Rose: Landenneau	1,5 mg/L				1,5 mg/L.
Gommlette Verte: Eau du Passage					
Gommlette Mauve: Eau inconnue					

Tests results

	goulette Jaune	goulette orange	goulette rose	goulette verte	goulette mauve
Acidité PH	7	7	6	6	7
ion Nitrate NO_3^-	10 mg /L	5 mg /L	10 mg/L	1 mg/L	5 mg /L
ion Phosphate PO_4^{3-}	1,5 mg/L	0,5 mg/L	0,5 mg/L	0,5 mg/L	1,5 mg/L.
Ion ammonium NH_4^+	0 mg/L	0 mg/L	0 mg/L	0,2 mg/L	0 mg/L
Ion Nitrite NO_2^-	0,02 mg/L	0,05 mg/L	0,05 mg/L	0,1 mg/L	0 mg/L

Many thanks to all the pupils who took part into this very interesting experiment : Lucie, Marianne, Quentin T, Yohann, Maël, Quentin D., Sylvain, Andrès, Valentin, Téo, Ewen, Costa et Mathys.



Year 8 Ambassador pupils

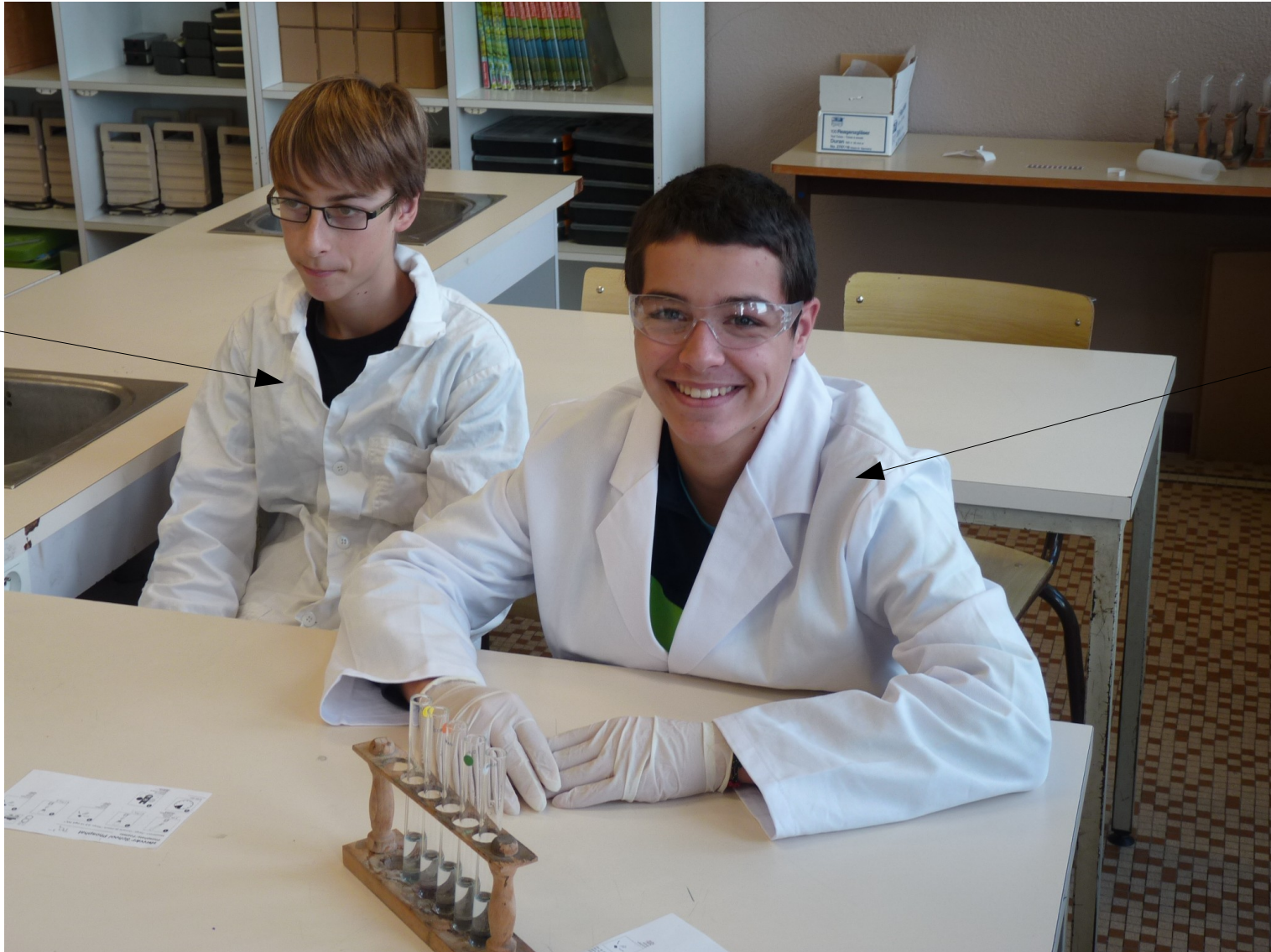
Mathis



Costa

Year 10 Ambassador Pupils

Téo



Ewen



**This week, January 19th to
24th 2014, we are proud to be
our school ambassadors**



Éducation et culture
Éducation et formation tout au
long de la vie
COMENIUS



in Constanta, Romania !

