

Motivate to Learn: other ways of learning Biology, Maths and other Sciences

Maria Judite Almeida^{1,2,3}, Alexandra Nobre^{1,2,3}, Augusta Pinto⁴, Lília Cunha⁴, Marina Maciel^{1,5}, Cristina Almeida Aguiar^{1,3,6}, Maria Antónia Forjaz^{1,7,8}

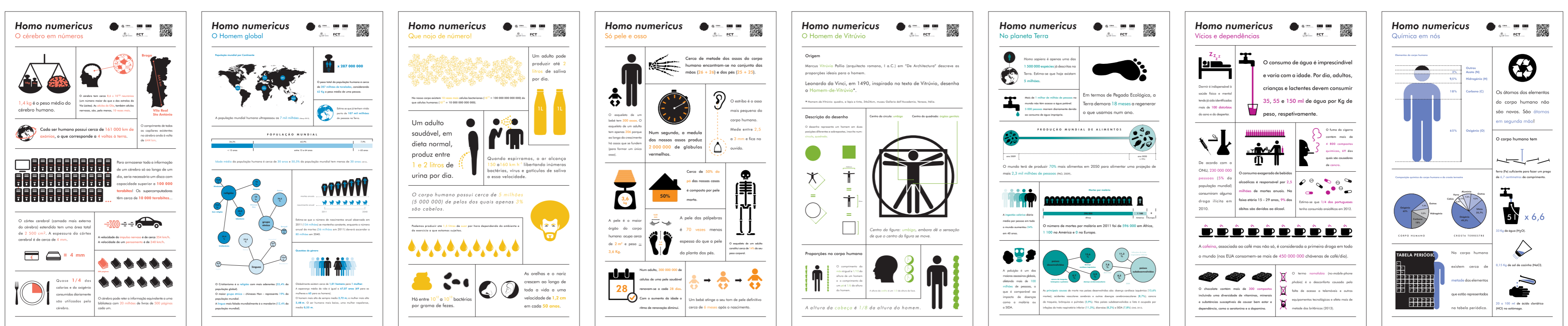
1 STOL - Science Through Our Lives, 2 CBMA - Centro de Biologia Molecular e Ambiental, Universidade do Minho, 3 DB - Dep. Biologia da Universidade do Minho, 4 Externato Infante D. Henrique, Ruílhe, Braga, 5 UNL-Universidade Nova de Lisboa, 6 CITAB – Centro de Investigação e de Tecnologias Agro-Ambientais e Biológicas, Pólo da Universidade do Minho, 7 CMAT – Centro de Matemática, Universidade do Minho, 8 DMAT – Departamento Matemática e Aplicações, Universidade do Minho



Learning outside the classroom can be used to facilitate Education.

Experiences outside the classroom provide opportunities to practice skills of enquiry, analysis and clarification, as well as problem solving, thus enhancing learning.

Externato Infante D. Henrique, Ruílhe, Braga, Portugal | Classes: (6) 6th GRADE 160 students, (6) 9th GRADE 157 students



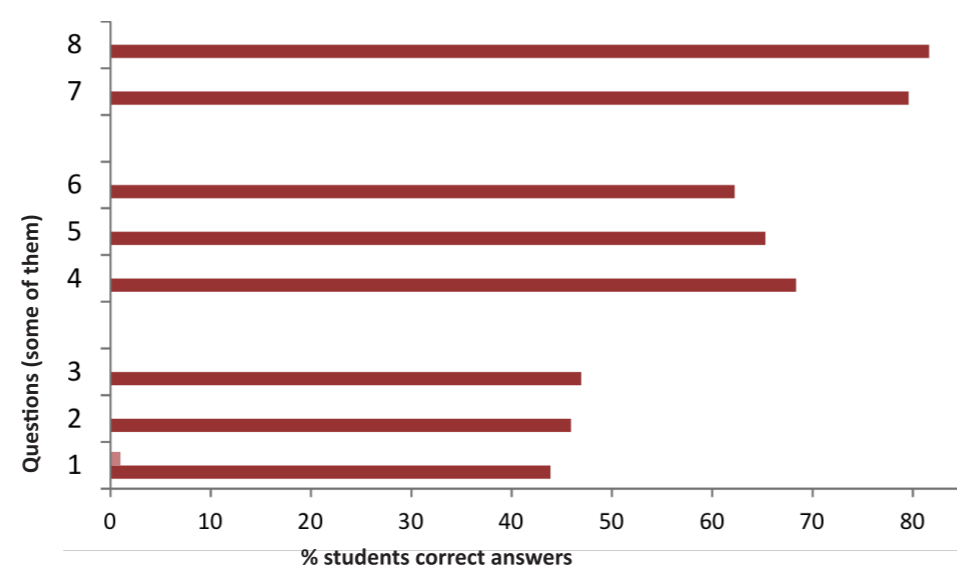
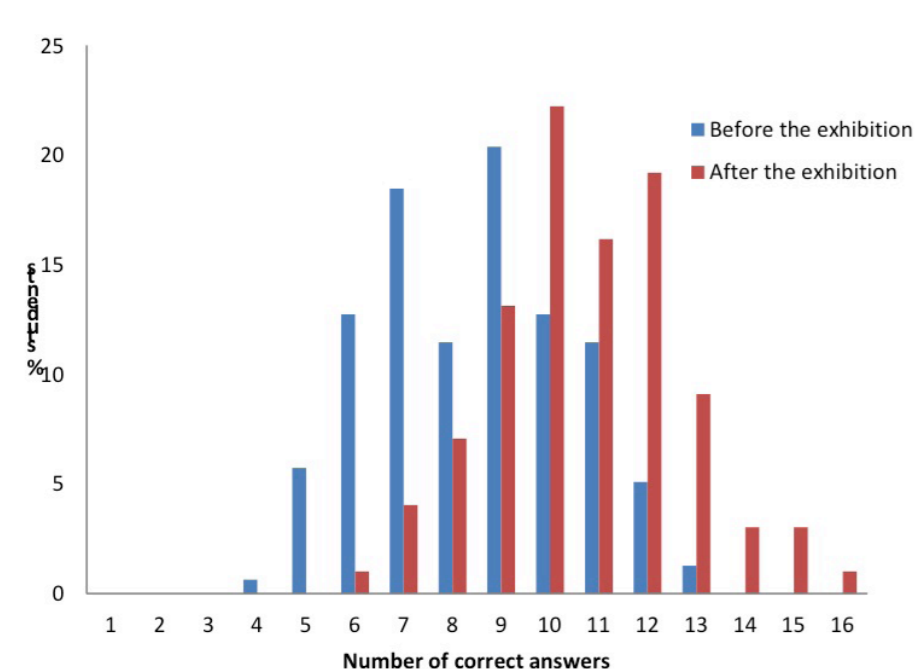
Homo numericus Exhibition

Eight roll-ups and a set of hands-on activities that show different curious aspects (morphological, physiological, biochemical, behavioral) of the relationship of Man, in general, and of the human body in particular, with others and with the environment. All information translated into numbers, in a truly multidisciplinary perspective where Biology, Mathematics, Physics, Chemistry, Ecology, Sociology, Geography and many other Sciences are present.

Pre-TEST
(15 questions)
6th GRADE: 0 STUDENTS
9th GRADE: 157 students

Questão	V	F
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Post-TEST
(2 months after)
6th GRADE: 0 STUDENTS
9th GRADE: 98 students



Evaluation of the Initiative

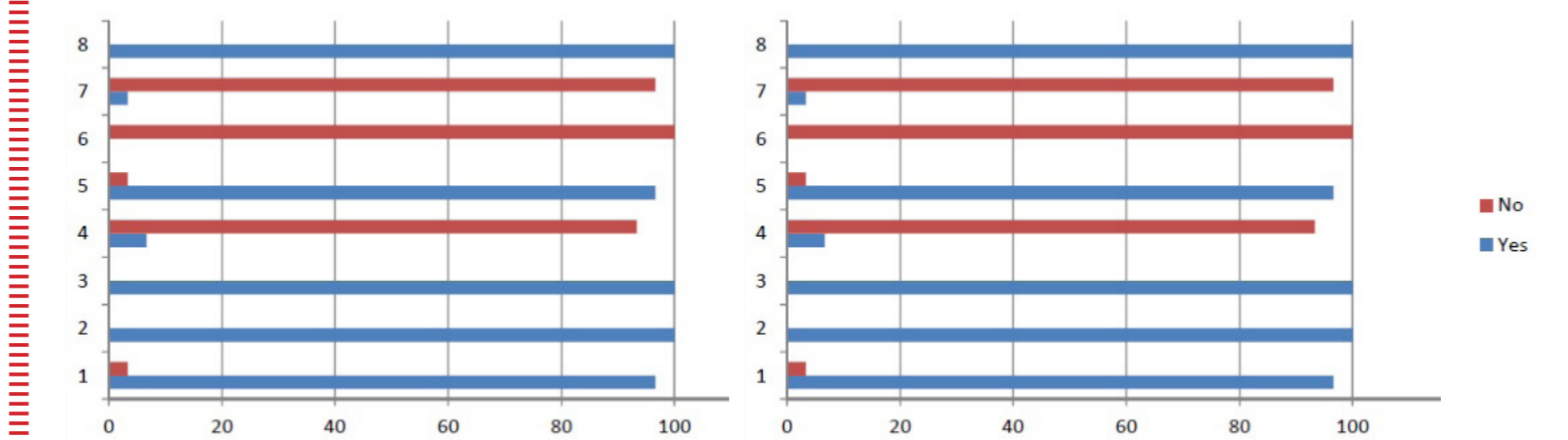


% of students answers

- Did you like the activity?
- Did you like the rolls-up?
- Did you like the hands-on?
- Have you ever participate in similar activities?
- Is this your first time activity?
- Would you like to participate in more activities of this kind?
- Was it a long activity?
- Do you think your friends would like to visit this exhibition?

6th GRADE: 30 students

9th GRADE: 84 students



Conclusions/ Comments

- the initiative boosts students' curiosity, especially some particular details (information about the brain, the amount of produced fluids and the size of the digestive tract).
- the number of correct answers increase after visiting the exhibition and engaging in hands-on activities.
- questions with the best results correspond to the ones related with hands-on activities whether questions with the worst results are associated with information on the roll-ups.