

## ASK & GUESS: a Computer Game About (Almost) Anything

**Abstract:** *Ask & Guess* is an educational computer game inspired by the popular BBC radio program of some years ago called *Twenty Questions*, well before the wide-spread use of personal computers. Semi-quantitative evidence has been gathered that points to a wide use of the game and its good acceptance, especially after its inclusion in the Portuguese science site [www.mocho.pt](http://www.mocho.pt). A quantitative evaluation is taking place using a selected group of 12-14 years old students. An *author mode* has been added which enables users to create their own games. An *inverted mode* is being envisaged, by which the user and the computer exchange their roles. Partnerships are being sought in order to implement a version, which will enable two players in different countries to play online, making use of a translation interface and a chat in real time, with obvious intercultural impact.

### Introduction

Long before the information society, educational games were already practiced by the ancient Greeks. More recently, Piaget (1951) concluded that educational games are an unavoidable part of successful learning. The introduction of the computer enhanced the pedagogic potential of games namely after the interaction with the machine became easy and friendly (Papert, 1980). Nowadays, a huge number and variety of computer games are at the disposal of children and youngsters, having quite varied effects on their education. In this as well as in other fields, especial attention is required so that computers do indeed always contribute to a balanced human development (Norman, 1993; Prensky, 2001).

This paper presents an educational computer game inspired in the popular BBC radio program of some years ago called *Twenty Questions*. After a first test in a few Portuguese schools using the traditional mode applied to Chemistry, a computer version was designed and extended to many other areas aiming at users of various ages. The fact that it can be applied to any field of knowledge justifies why it is called “O jogo das coisas” in Portuguese (“a game about things”).

The game was written in *Flash* and is available on-line at [www.jogodascoisas.net](http://www.jogodascoisas.net), using a highly motivating multimedia environment. It is one element of a collection of digital resources for science education developed at the Centre for Computational Physics of the University of Coimbra, Portugal, and available at [www.mocho.pt](http://www.mocho.pt) (Paiva, Fiolhais e Costa 2002). At the present, 82 games are online, in the areas of Biology (3), History (3), Children Education (20), Chemistry (15), French (18), English (10), German (3), Spanish (3) and Various (7). An “author mode” allows the creation of more games, in any area, without the need for any skills in computer programming.

The nature of the game is better reflected in the title *Ask & Guess*. This emphasizes the importance of asking questions, according to some categories, as well as making decisions based on limited information. Besides the cognitive objectives, the game aims at the development of inquiring skills, the use of selection criteria and the promotion of self-confidence.

### The Format of the Game

The game is based on a simple algorithm. In each of the several areas of knowledge offered (from History to Fruits and Vegetables), a collection of items (images, words, sounds, films and animations) is shown, out of which the computer randomly selects one that is kept hidden for the player to discover. A set of questions is also displayed, out of which the player, intelligently and economically, selects the least number that will enable a successful decision based on yes/no answers by the computer (Fig.1). One of three levels of difficulty can be chosen. A system of negative points for each question and positive points for correct guesses is included, a *top-ten table* being activated if required by the player.



**Figure 1.** Fruits and vegetables (English version).

Although one of the objectives is to develop the ability of the user to eliminate some of the items as a result of the first answers provided by the computer, a shading mechanism can be activated as support (Fig.2).



**Figure 2.** Shading of items to be excluded as a result of previous answers.

A tutorial that explains the game functionalities can also be explored (Fig.3).

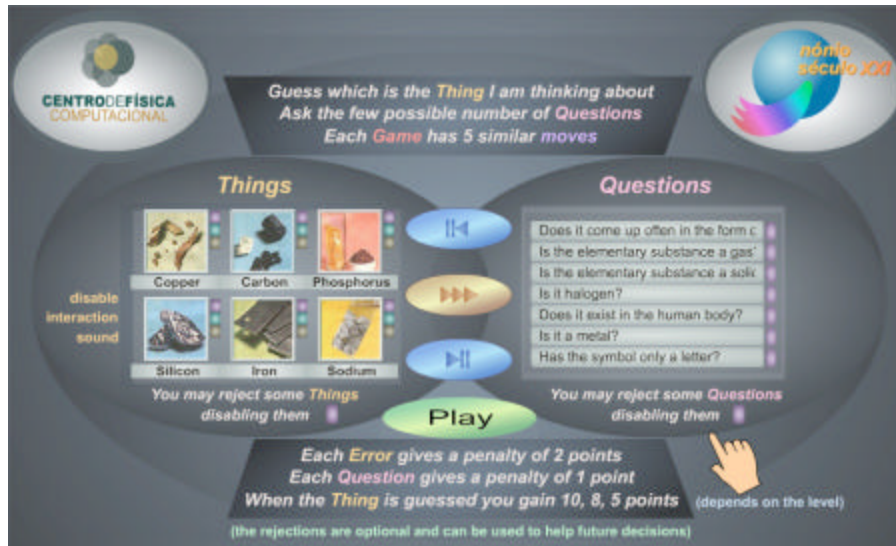


Figure 3. Tutorial

## Edition of New Games

The *author mode* enables the construction and edition of new games online. These can be submitted for evaluation by the authors of this software.

One may create new games but also modify the available ones, by selecting this option and edit, delete or create an item as well as change text and order in questions. In this manner, the items/questions matrix can be altered and updated (Fig.4).



Figure 4. Edition of game with modification of yes/no question (animals).

## Future Work

A quantitative evaluation of the software is being carried out using a selected group of pupils of 12-14 years of age. The initial results are enthusiastic.

Work is in progress regarding an *inverted mode* by which the computer and the player change roles. Another goal is to develop a mode where two players are together online. In particular, it is hoped to develop a version where two youngsters of different countries may play online, with the help of a translation interface and a chat in real time. This new development will additionally promote the learning of foreign languages and will approximate different cultures. To accomplish this goal, the authors welcome partners from other countries.

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