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The Board for the ESA Space Game
Introduction

Education activities have always existed at ESA and the word ‘education’ even appears in the Agency’s Convention. Until the mid-90s, however, most of the education activities at ESA were directed at university students, via training periods, fellowships and the Young Graduate Trainee (YGT) scheme. There were some activities aimed at younger children, but they were usually one-off activities or events.

Some years ago, it became evident that throughout ESA’s Member States there was a steep decline in the interest of youngsters in science and technology and that there was a high risk that there would not be enough teachers, scientists or engineers in 10 or 20 years’ time. This prompted the Agency to begin building a coordinated programme targeted not only at students, but also at children as young as six and their teachers (starting with the Physics On-Stage event in Geneva in 2000). The main rationale is to tap into the motivation and curiosity that children have at that age and hopefully steer some of them towards scientific studies and professions later in life.

One of the challenges that we are faced with in building a European space-education programme is that our Member States are very diverse, and their educational systems also, not to mention the problem of languages. There are 11 languages in use in today’s 15 ESA Member States. Some countries have a national curriculum within a strong national education system, some a regional one, and it is very difficult to define products or activities that fit perfectly with all of these curricula. On the other hand, some concepts are universal and studied all over Europe and we are trying to benefit from that by identifying generic tools that teachers can easily adapt to their specific needs.

The Space Board Game presented here is a good example of such a tool. It is simple to use, adaptable to the needs and wishes of the teacher (way to play, duration, level of the questions), and it can be used as a complement to regular scientific or language classes. Teachers can also ask their pupils to enrich it by devising new questions.
The game is available from the ESA website (www.esa.int/education) to facilitate distribution and allow all those who have access to a computer and the Internet to download it free of charge. Most schools in Europe already have Internet access, or will have it very soon. New questions are prepared every month to maintain the children’s interest and allow teachers to use the game several times. The game is available in English, French and Spanish in its first version, with German and Italian following. We are, of course, ready to incorporate new languages, where teachers or national bodies feel able to undertake the necessary translation.

The Principle

A comet, Saturn, the Moon, the Milky Way, Gagarin, Armstrong, Meteosat … space always excites the curiosity. We are therefore trying to exploit this curiosity to encourage youngsters to find out more about space, not as a formal subject, but as a game, a game that can be played not only in school, but also at home and during the holidays.

Our first target group being teachers, the Space Board Game was developed by a teacher and tested with teachers. It is structured so that teachers can easily incorporate it into the school timetable and use it in different ways, and so that organisers of youth activities can also use it. Discussions with teachers at the ECIS (Berlin 2002), Teach Space (ESTEC 2003) and other educational events highlighted several possible scenarios for the game’s use:

– as part of the study of subjects related to space, such as biology, geography and physics
– to assist in the teaching of foreign languages
– to build projects related to science, with the pupils developing their own questions
– at the end of the day when pupils become less attentive and can be re-motivated by a game
– whenever there is time left over
– during school side activities outside the classroom, e.g. Centres de loisirs in France.

The important point is not that the pupils know how to answer all the questions, but that they remember the correct answers once the game is over, thereby learning about space and its importance in our everyday lives.

Teachers can also ask pupils to do some research into a specific subject in order to prepare for the game and attempt to answer the most difficult questions, even if they are relatively young. They can also be asked to prepare new questions on a specific topic for their fellow pupils and thereby enrich the game. Encouraging discussion and comments after each test or set of questions is also an essential part of achieving the objectives of the game.

It was conceived as a traditional board game, but with different sets of questions or problems depending on the square on which the counter falls. This can be answering a quiz-type question, making a drawing so that others in the team can guess the chosen word, or finding a word or subject by following a series of clues given by the teacher. Falling on special squares results in special actions, such as allowing you to move the counter of another team, blocking you on your current square, or sending you back to the start due to your counter falling on the ‘Black Hole’!

The game started with 150 tests and questions directed primarily at 13 to 17 year olds, and it is being updated each month with 20 new questions and tests. Questions are graded according to three levels of difficulty, allowing teachers to select the easier ones so that primary level classes can also play the game. The board itself, which was designed by ESA Publications Division, is downloadable on two A4 sheets and suitable dice and counters are also suggested.

Our hope is that many schools will use ESA’s Space Board Game regularly in their teaching, and that as a result pupils throughout Europe will become more aware of the immense possibilities of space and the benefits that it brings in our daily lives. We also hope that, as part of this learning process, ESA’s work in general and the activities of its Education Office in particular will become much better known to the younger generation.

For any questions relating to ESA Education activities, please send an e-mail to education@esa.int, do not forget to make regular visits to the Education web site at www.esa.int/education to catch up on the latest news, and send us your own questions for incorporation into the game!
Physics on Stage

science teaching festival

8–15 November 2003
ESA-ESTEC
Noordwijk, NL

Physics and Life

http://www.physicsonstage.net