



O2/A3: Learning contents: research, delivery method definition, templates

[LAM]



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Partners

SpaceGuardians 2 is a project co-funded by the Erasmus+ Programme of the European Union.

The project is joint initiative gathering Civic (Scotland) – as coordinator - Boon (Portugal), the Planton(Greece), the Asserted Knowledge (Greece), Advancis (Portugal) and the Laboratoire d'Astrophysique de Marseille (France).



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1. Introduction

The aim is to define the way the knowledge of astronomy/ space / STEM will be passed to the player. If the question cards are too difficult or if there is not enough interaction the players will not be enhanced to play.

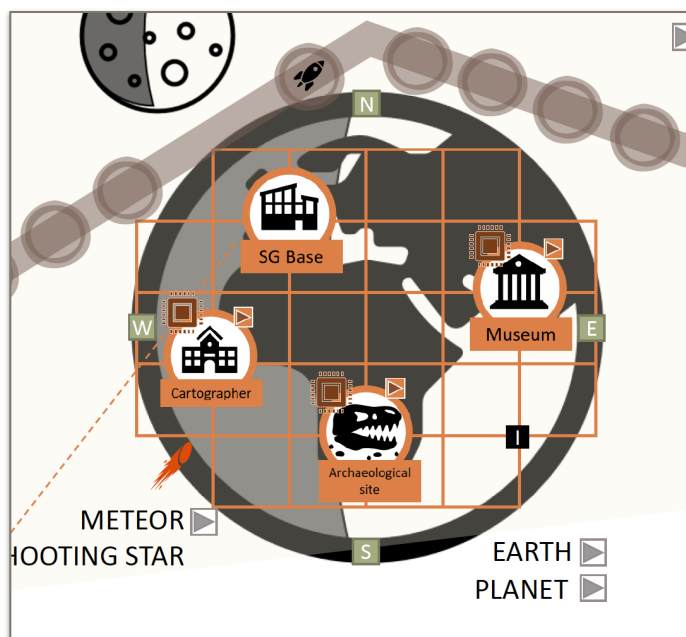
2. Game delivery content

Kids are supposed to come and play into the class, during an activity-day organised by educators, or at home with family. They may have been introduced to some information about astronomy before the game but we can not insure this.

2.1. On the board game

Using the graphics design and illustrations, several important information can be given already on the board game. They are four board games.

The **first board game** show the EARTH, as well as the North South West and Est coordinates. It bring here the learning content of the position of the continents with the frame.



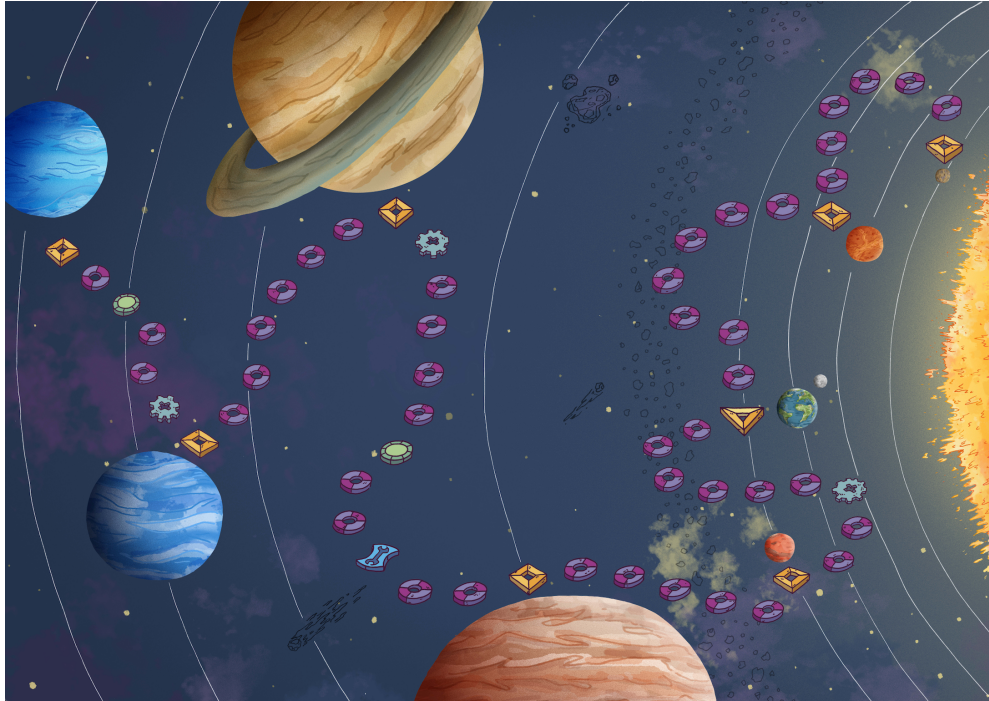
The **second board game** is not use to give learning content.

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The **third board game** are illustrated with the Solar system planets

The drawing inform on the comparative sizes between solar system planets, their colours, their order / distance to the Sun, showing if they have rings, satellites, human robots. The asteroids belt is also shown with their position and with their bigger object Ceres.



The **fourth board game** is on an undefined planet. It could be any of the System planets since the end of the precedent board will change at each game. We remind that the objective of the third board is to travel across the Solar System in order to find the provenance of the signal. So, it is difficult to bring here any information directly, but it could have informations in the game. it is discussed that a memory could be place here with astronomy images given then information on the subject. It is a good moment of the game to show these pictures that can be appreciated at this time where no answer are asked to the children.

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2.2. On the quizz

The player is supposed to reply correctly to question in order to collect pieces of the construction kit (board game 1), piece of fuel (board game 2), travel across the Solar System (board 3).

In some cases, the questions could be precessed by videos or some information on astronomy before being asked. We did questions with different choices. It could be chosen not to give the options to the kids. But in the case, this is too difficult for younger kids, we can give them the options.

A good proposition would be to introduce often illustrations on the questions. exemple : show a picture of a Solar System planet and ask which object it is. Beautiful pictures are easily available and this will raise interest and questioning from the kids.

Example of questions :

- With choices given for the reply : How long was the trip to go to the Moon ?
a. 3 days b. 3 hours c. 3 weeks Reply: 3 days

- Including pictures : (with an image of the Earth) Which planet is shown on this picture ? Reply: The Earth

- Including schema : (a scheme with the Sun-Moon-Earth in the Full Moon position) With this configuration of the Earth position between Moon and Sun, what is the name of the phase of the Moon ? a. Full Moon b. New Moon c. quarter Moon Reply : Quarter Moon Reply: Full Moon

For this last example, we can also propose to the kids to do the experience with a ball and a lamp to find the right answer.

2.3. On the videos

Videos can be played in order to learn new content. These videos can be designed in order to precede a question (see previous section) or can be asked to be viewed as the player is at a certain place on the board game.

On the board game 3 : videos could be played associated to each planet, or to have a short presentation of the Solar System.

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2.4. With the construction kits

The construction kit allowed the kids to learn more about the STEM. Three objects will be proposed to be constructed to the kids with the three first boards of the game. Cardboard pieces will be proposed for parents and teachers that will not be able or that will not have time to dedicate to an experience / construction scheme including different materials.

Another option will be proposed for teachers, educators and parents that want or able to have more involvement. We will include descriptions on how to construction a rocket and how build a small observatory of the Sun.

3. Template for the delivery

Is it not seen needed to have the same template for all learning content of the game. For the delivery, it has been raised several ways to share the videos.

It was discussed the possibility to have our own application, but it was finally decided that this is too complicated and not needed. It is chosen that all content will be available through the webpage of the project. A maximum of the contents will be downloaded and stored on the website in order to stay available for several years. Some partners, as LAM, indicate their wishes to be also able to store the SG website in order to be able to exploit them for a long term.

4. Conclusions

Kids are supposed to come and play from a school, an activity-day, or from family. They may have been introduce to some information about astronomy but we can not insure this.

We may propose in the introduction of the game in the kit to strongly enhance to do some astronomy related topics before to play the game. If it is in school, some subjects can have already be discussed before : Solar system planets, Earth-Moon relation,... The learning framework is the reference for the teacher.

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In all cases, we can recommend to read the two ebooks before the play in order to collect some information and to generate the interest to learn more about astronomy put the link. The ebooks could be seen as a first glance to apete the public before to have lessons on astronomy. Or to read some general books at home for the parents. Some dedicated activities can be done at school or at home, as proposed in the facilitator guide of the ebooks [https://spaceguardians.eu/sites/spaceguardians.eu/files/SG_Facilitators%20Guide-V2.pdf].

Since the game has several boards, the teachers/educators/ parents should not hesitate to play the game by level. This is another advice that could be given in the kit going with the game. Do the first board game, and then use the raised interest to introduce more notions of astronomy to the kids before to play the second board game.

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