

## **The Lord of Rings – the mysterious case of the stolen rings: a critical analysis of an informal education activity**

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## Abstract

“The Lord of Rings – the mysterious case of the stolen rings” is a live astronomical role-playing game for kids aged 10 -13 [1].

Its goal is to introduce them to some of the main topics of the Solar System: a) the role of gravity; b) the distribution of mass & light; c) the effects of rotation; d) the distribution of water. The game was held at several Science Festival in Italy (Perugia, Genova, Fiorano, Bologna) obtaining great success.

Teams of about 6-8 members are introduced to Mr Schioppanelli, the astro-detective of the town (the name is a pun: it reminds Schiaparelli, the famous italian astronomer, and it is a slang expression meaning “ring-breaker”). Mr Schioppanelli has his office in an “gastronomical astronomical observatory”, known as The Red Giant Pizzeria. Schioppanelli informs the kids that a mysterious Centaur succeeded in stealing the rings of Saturn.

The participants are appointed astro-detectives in-charge and asked to find the rings by browsing around the Solar System, which is scaled so as to fit the town historical centre or a pedestrian area, going from the Sun to Saturn or beyond, depending on the actual area at disposal. Great care must be taken allowing children playing only in a car-free area of the town.

At the right scaled distances, the participants meet characters playing as the various planets. The kids can talk to them after solving a riddle, obtaining useful informations. A special characters play as a comet, timely going in and out of the inner solar system. The teams can also talk to some shepherd-moons of the rings. They easily discover that the rings were totally destroyed by the Centaur: a real disaster! They are also suggested to gather the necessary ingredients (gravity, light, rotation, inclination, dust and water, represented by simple objects like apples, spinning tops and so on) to rebuild the rings.

The kids can buy the ingredients from different planets: every planet has ingredients in quantities which are proportionate to the real physical properties of that celestial object. After collecting the ingredients, they must carry them to the “The Red Giant” and indicate their best recipe to Mr Schioppanelli. Depending on the recipe, rings can be

too strict or too luminous or too fast rotating and so on. The winning group is the one which prepares the best recipe to cook the rings in the smallest amount of time.

After introducing this specific (and mysterious) game, we analyze the advantage-disadvantage ratio of such an activity, which is as funny as dispersive [2].

The key expression of the whole activity is, of course, “informal education”. But, as a best practice result, we organize also 1 or 2 very simple laboratories about the solar system before playing the game.

One of these, called *The Olmicomics*, allows the pupils to understand the dimensions of the planets with respect to their distances, providing them the correct introduction to “The Lord of Rings”. The pupils are simply requested to place the planets in a correct scale on a map of the city where they live. Then we coherently calculate together dimension of the Solar System planets and the Sun, according to the scale they chose.

The second activity provide the pupils hints about the physical properties of the planets, touching the points a)-d) listed above.

We believe this two-faces strategy is a quite effective tool for an education suited to our target group. They really *do* things, *touch* things, *use* their own body as a meter to understand distances and physical properties as the gravitational force. In the meanwhile, they are also asked to *think* about what they are doing, to make calculation and to build a representation of the Solar System by numbers, turning it into a visual representation only after their calculation. And, finally, to play with all these concepts.

## References

- [1] [http://en.wikipedia.org/wiki/Live\\_action\\_role-playing\\_game](http://en.wikipedia.org/wiki/Live_action_role-playing_game)
- [2] Z.Fefoldi, Discoveries with the five senses, in A place to discover, 51 (2002).