



# Astrocaching as an Outreach Tool for Schools

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## Abstract

We tried a scavenger hunt as an outreach tool to inspire 10–13 aged pupils for astronomical issues. The game was inherited from the “Geocaching” activities which employ GPS or other mobile devices to hide and seek repositories anywhere in the world. We altered the rules such that the itinerary was based on astronomical instructions, and the repositories contained related items. The realization was successful, however, some difficulties arose in the specification required from the young students.

## 1 Introduction

School children are familiar with scavenger games. The basic idea goes back some 150 years, when references to landmarks at Dartmoore, England, were given to find a particular spot. Today, this is known as “letterboxing”. The most modern method came up in May 2000, shortly after the deployment of GPS-equipment. There are many variations to the hide-and-see games which can be found elsewhere (e.g. Wikipedia).

For an astronomical activity at a school in Karlsruhe, Germany, in 2005, we designed a first draft with 16 cardboards that were visibly placed in a wide-area site. Each team of students received a questionnaire with eight very difficult astronomical questions that could hardly be solved without the cardboard. Moreover, a map was provided for the locations of all cardboards. All teams, each of five students, were sent out at the same time to find their particular route answering their individual questionnaire. This easiest way of scavenger hunt turned out useful for elementary schools, though, the navigation via map seemed to comprise some difficulties.

In 2011, a second attempt was conceived for 5th to 7th grade pupils. The cardboards were replaced by small repositories not larger than the palm of a hand and more severely hidden into tree wholes, scrubs, underneath benches etc. Each team was reduced to 4

members, and the navigation was modified to a verbal description instead of a map. Because of its astronomical profile (orientation description and topic) we renamed the game into “Astrocaching” in accordance to “Geocaching”. The demands were higher, however, the “fun factor” for the school children proved a larger success than six years ago.

## 2 Didactical Competences

Most of the children experienced this game as a good starting point to get involved with astronomical issues. The following competences were fostered:

- comprehension of instructions;
- geographical orientation (compasses);
- precision when processing items;
- individual efforts when searching within the radius of tolerance;
- team working and communication;
- and, finally, improving astronomical knowledge.

## 3 Method and variants

We tested the Astrocaching hunt in several variations. The response was as manifold as the difficulties being faced. In some cases it seemed that there were “too many stations”, or “not enough time to find them”, or “the hints were too complicated”, and vice versa: they appeared “too easy”. However, these problems disappeared in the course of several runs.

In most cases the given hints should have been easy to understand, e.g. “ivy tree”, “stonehenge near floating water”, or “you can recover there” (bench), though not too simple, especially when considering the complete accessible area. The hidden containers were small waterproof boxes (glasses) in different colors.

Thus, each station had its specified color, and the questions were appropriately assigned to that color. To make sure that no team would use mobile equipment with internet connection in order to answer the questions, we asked them to literally repeat the essential sentence as given at the station.

The topics chosen for our Astrocaching game varied according to the overall subject of the event: Saturn, or space missions, or general astronomy. In one case we cached nine stations for the Solar System - eight for the planets plus the Sun. All in all, this hunt resembled a journey through the astronomical topics.

We also tested various the team sizes, ranging from 2 to 5 members. It turned out that the optimal number of a group was 4 pupils. We further tried different types of containers, different ways of providing hints, and several alternatives for evaluation and rating.

## **4 Conclusions**

For all participants at any event, Astrocaching was a great pleasure independent of the topic, but the contact with astronomy was very intriguing. The children experienced a positive impulse to the work which is often credited to be “dry matter”. Generally, we conclude that Astrocaching is a brilliant method to motivate youngsters for scientific issues. An ongoing question which we try to settle is whether and how the long-term interests are influenced by such kind of games.

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