

Astronomy Education in Primary Schools: Characteristic, Discrepancy, and Implementation

Jin Zhu (Beijing Planetarium)




6 Fundamental Natural Science Subjects

- 数 mathematics
- 天 astronomy
- 理 physics
- 地 geography
- 化 chemistry
- 生 biology

Why is astronomy a suitable medium for provoking the curiosity (and even integrity) of students?

- Unlike subjects which mainly concern aspects of the human society or things on Earth, the study of astronomy focus on things far beyond our planet, without any direct connection to people.
- Considering the vast scope of the universe and the extremely complex physical conditions which are impossible to achieve in labs on Earth, there are frequently new discoveries exceeding our imagination in the field of astronomy.
- Such features make astronomy a science more closely related with observation where the astronomer is an objective observer trying to figure out how the universe operates under the physical laws. This is quite different from other subjects where scientists involve deeply with objective actions in the labs on Earth.
- Astronomical phenomena such as solar/lunar eclipses, meteor showers, conjunction of planets and the Moon, etc. could be easily observed with naked eyes, which is different from important events in many other fields where we can only learn from media without first-hand experience.
- The normally unreachable long distances to the objects/phenomena interested by the study of astronomy also make it a very simple and straightforward field without additional complex considerations like potential benefits or ethical issues.



Some specific considerations for astronomy education, especially in the case regarding primary school students

- Many observations involve with night and field activities, which should be performed with safety in mind by both the students and their teachers/parents.
- The environment of the astronomy activities encourage the students to freely express their opinions which could be very different from the tradition of young children obeying authorities in some cultures.
- Emphasizing on things which are 'unrelated' to mankind/the Earth is quite different comparing to the traditional values emphasized in education such as being a 'good person' with a kind-heart, accommodating, team spirit, leadership and other characteristics the community/society would prefer.



Conclusion and Outlook

- We believe curiosity and integrity are not only the most important traits for researchers in fundamental sciences, but also essential for everyone in the society for an overall higher happiness index.
- Astronomy education might be the simplest way to help achieving such goal, but it must be implemented together with other necessary subjects balanced appropriately in terms of their respective time required and actual content.
- Unlike textbooks filled mostly with absolutely correct information in other fields, the most interesting aspect of astronomy is no doubt the constantly emerging discoveries (which are not presented in any textbook and may still under discussion) and the upcoming astronomical phenomena to be observed (with results uncertain at the moment) in the near future.
- The content of astronomy education should be varying from year to year. A textbook in the traditional sense may not be suitable in the case of astronomy education.
- Based on our practice of astronomy education in China for the past 20 years, we are investigating the possibility to promote such content of astronomy education via a monthly journal of astronomy outreach.