

Interdisciplinary Astronomy in Planetarium Shows

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Abstract: Astronomy is one of the most interdisciplinary sciences. It has connections with most other sciences and with several fields beyond the sciences. Planetarium programs can utilize these ties to broaden their appeal and to show astronomy in its widest context. Several examples of interdisciplinary programs are briefly described.

Astronomy is a naturally interdisciplinary science. It has direct connections with all the other natural sciences, including physics, chemistry, geology, biology, and meteorology. It also has links with many areas beyond the natural sciences, such as archaeology, mythology, history, and geography, and it affects everyday life in a variety of ways. Many of us explore these links directly or indirectly in the courses we teach. Planetarium programs are a public avenue of astronomy education in which an interdisciplinary approach can be used. An interdisciplinary component in a planetarium show can help to (1) create shows of broader educational appeal, (2) display astronomy in its broadest context, and (3) demonstrate astronomy's relation to other topics and to everyday life. This approach can provide effective astronomy education and also draw an audience that might not come for the astronomy alone.

Many of the planetarium programs we have created at Bowling Green during the past decade have had a strong interdisciplinary emphasis. Many people in our audience now expect it and find their astronomy education experience is enhanced by its placement in an interdisciplinary context. In scripting these programs, I try to weave the themes together in a seamless way so the audience will see them as naturally connected. Some of our shows which have included other subject areas are:

It's About Time (1987): The story of how we keep time. Our clocks and calendars record all the prominent cycles of the sky. The program shows these cycles and tells how many early cultures such as the Babylonians, Egyptians, and Romans based their calendars on them, thereby creating the hours, days, weeks, months, and years we use today. (Includes history, geography, and effects on everyday life.)

I Paint The Sky (1989): A visual guide to the colors in the sky: daytime blues, sunset reds, vibrant rainbows, shimmering auroras, icy halos, deceptive mirages, and more. (Includes meteorology, physics, and effects on everyday life.)

Secret Of The Star (1989): A December-Christmas program. It shows the origin of many Christmas customs in ancient solstice festivals and demonstrates several theories, astronomical and other, of the star of Bethlehem. (Includes history and effects on everyday life.)

Sky Stones (1991): An interpretive trip to Stonehenge, the pyramids of Egypt, the temples of the Maya, and many other native American sites, all part of the legacy of ancient skywatchers who recorded the celestial cycles in their great stone buildings and monuments. (Includes archaeology and cultural geography.)

Water World (1992): The life story of the Earth: born by accretion from the solar nebula; divided into crust, mantle, and core; awash in oceans and an atmosphere outgassed by volcanoes; shaped by drifting continents and their volcanoes and by mountain ranges on land and sea; subject to ice ages and a human greenhouse; and destined to perish when the Sun becomes a red giant. (Includes geology and an appeal for the environment.)

New Worlds? (1992): A show on exploration of the Earth for the Columbus quincentenary. It includes the voyages of the ancient Greeks and Phoenicians, the Vikings, and Columbus; an evocative section on native Americans; Ptolemy's work as astronomer and geographer; Copernicus making the Sun central; and modern spacecraft missions. (Includes history and physical and cultural geography.)

The Seabird Show (1993): A celebration of seabirds and their environment. Includes an illustrated alphabet of seabirds, a section on migration and navigation, and a puffin's narrative of its life. Inspired by a trip to seabird colonies in Quebec and Labrador. Only a little astronomy here but a lot of fun. (Includes biology and an appeal for the environment.)

The Day The Earth Turned The Wrong Way (1993): A story-format program for young children in which the Earth protests environmental abuse by rotating backwards and telling how we abuse it. The other planets travel to Earth to show how they are not suitable for human life. (Includes an appeal for the environment.)

Unworldly Weather (1994): Weather on the Earth, on other planets and moons, and on the Sun, including hurricanes, tornados, thunderstorms, drought, and extreme hot and cold, as well as many types of clouds, rain, and snow. (Includes meteorology and effects on everyday life.)

Dinosaur Light (1996, in prep.): The light from stars and galaxies that we see now left there in the past. This show will weave together a description of selected astronomical objects and the events of human or Earth history occurring when the light now reaching us left those sources. (Includes history, geology, and biology.)

We have also run some purchased planetarium shows which include topics beyond astronomy. Of course, we also purchase and create shows whose topics are almost exclusively astronomical.

Naturally, the choice of topics and how to convey and relate them depends on the writer/educator's own interests and style. But whether you are in planetariums or in another avenue of astronomy education, I would encourage you to include an interdisciplinary element whenever you can. It will add interest for you and for your class or audience and it will contribute to more effective astronomy education.