



Berwick Educational Association

## Music of the Spheres: The Mathematics of Music

A lecture by Professor Michael Worboys

Wednesday 14<sup>th</sup> March 10am -12noon, William Elder Building, 56 -58 Castlegate, Berwick

From the times of ancient Greece to the present day, music and mathematics have been closely intertwined. Music has been used by early astronomers to explain the movements of the planets and stars, and musicians have employed mathematical structures to compose and analyse musical works. Music, as organized sound, derives its nature from fundamental physical laws. In this lecture, we will look at some key connections between mathematics and music, and use these to address some questions, which include:

- How do patterns of waves in the air relate to sounds that we hear?
- Why do a flute and a saxophone sound different?
- What is the difference between music and noise?
- Why do some sounds seem more pleasant than others?
- How are musical instruments tuned?
- Is there any connection between the movements of the moon and planets and musical harmony?
- How have composers used numbers, geometry and statistics to construct music?
- Can computers compose interesting music?

The lecture will be a mixture of theory, practical demonstrations, and musical excerpts. Our lecturer, Michael Worboys, is a scientist and composer. He has a PhD in mathematics and a master's degree in musical composition.

All are welcome. The lecture will be accessible to all and no previous knowledge is assumed.

The cost of the lecture is £6 and includes refreshments.

[To book online, please click here](#)

To book by mail, please fill in the booking form below, and mail to BEA, 7 Ravensdowne, Berwick-upon-Tweed TD15 1HX along with a cheque in favour of Berwick Educational Association.

If you have any queries, please email [berwickea@gmail.com](mailto:berwickea@gmail.com) or phone Cian McHugh on 01289 303254

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(Music of the Spheres)