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What we learn(ed) from rainbows

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As well as describing the beautiful physics of a dramatic natural phenomenon, rainbow studies over several centuries have illustrated unexpected connections with other areas of physics and the practice of science more generally. The connections include:

- Numerical experiments when mathematics is too difficult
- Illusions: there is no arc in the sky
- A theory (light rays) being replaced by a deeper one (light waves)
- Decoherence: wave interference blurred by imperfect resolution
- Universal wave decoration of smooth focal lines
- Rainbow waves in water
- Colour theory
- Gell-Mann's totalitarian principle
- Mathematics of divergent series

