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The immortal ant and the expanding balloon.

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Summary: In this article we consider, via a specific modelling example, the educational benefits to be gained from running mathematical activities with our sixth-form and undergraduate students that, in modern parlance, might be termed ‘rich tasks’. The idea for this modelling activity arose while the author was reading a popular-science book on cosmology (in particular, on the possible shapes of the universe). Light travelling around the universe was likened to an ant crawling around a balloon. A statement in the book regarding the ant’s progress around the balloon did not entirely ring true with the author, and his subsequent investigations led to the activity described here. We explore several scenarios associated with the model in order both to pre-empt possible paths taken by the students and to be able to provide some guidance when necessary. Suggestions are given as to how the activity may be extended, and then, after highlighting the numerous educational benefits, we consider the potential pitfalls and difficulties associated with the delivery of tasks such as these.

Classification: I54 I55 M14 M15

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