Mapping a Globe - Teachers' Notes

How do you make a 2D map out of a 3D globe?

Curriculum Links

At Level 4 and Level 5 students are expected to work confidently with maps relating to position and orientation and also with the area of transformation including enlargement. The technological modeling demands of this task require the student to understand the concept of 2D and 3D so they can evaluate the impact of moving from one dimension to another.

Background

This task requires students to transform a 3D sphere (the globe) into a 2D shape (the map). It introduces the concept of mapping projections and the demands that cartographers have had to meet in dealing with the very same task. The student is creating a net for the globe and then evaluating what distortions may occur when the net is turned into a rectangle (like most world maps that fill the empty spaces with "ocean" to make a rectangle).

Suggestions

The critical evaluation of various projections is enhanced by the practical task of first creating one yourself. The modeling of the situation provides a meaningful context within which to explore the idea of making nets and understanding maps.

There are many pathways of further investigation or research that can come from this task. A student who is interested in mapping may be encouraged to investigate latitude and longitude and the area of navigation, or to investigate historical maps and representations of geography.

National Geographic's website has a section devoted to mapping and educational resources.
The main page is:
http://education.nationalgeographic.com/education/mapping/?ar_a=1

The link for Nation Geographic's interactive map maker:
http://education.nationalgeographic.com/education/mapping/interactive-map/?ar_a=1

A short video on choosing projections:
http://education.nationalgeographic.com/education/media/selecting-map-projection/?ar_a=1