

## Space: Its Light , Its Shape.

### Assignment: Torus and Klein bottle Checkers

**Due:** Wednesday, January 26, 2005 in class.

Write a short essay on playing checkers on the torus and on the Klein bottle. (This should be word-processed and one or two pages in length.)

Start with the torus. Can we play checkers on a torus? Are there any rules of the game which are confused by the topology of the torus? If so, which ones? How could you change the rules of the game to make it work better on the torus? (There are many different reasonable answers to this question.) If you take these new rules of checkers that allow it to work on the torus and play on the Klein bottle, are there any problems? Are there further changes needed to make playing checkers on the Klein bottle feasible?

If you aren't sure you understand the game of checkers you can refer to the webpage <http://www.chesslab.com/rules/checkersrules.html>