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| **Lesson Number: 22.3** |
| **Lesson Title: Electric Potential** |
| **Specification Reference** | **3.7.3.3** |
| **Learning Objectives** |
| Understanding of definition of absolute electric potential, including zero value at infinity, and of electric potential difference.Work done in moving charge *Q* given by Δ*W* = *Q*Δ *V*Equipotential surfaces.No work done moving charge along an equipotential surface. |
| **Opportunities for Assessment** |
| Page 368 questions |
| **Starter:** | Slide #1 enables discussions about equipotentials in general. This example is isobars and pressure however if students struggle with this then use contours and height. |
| **Main:** | Slides #2 and #3 are simple definitions of the main areas of concern for this lesson. Links can be made to gravitational fields and their counterparts although care must be taken not to confuse students (mass vs charge must be made clear)Slide #4 is an important depiction of how moving charges require work to be done, a common examination idea.Slides #5 and #6 show the equipotentials in a uniform field, link this to the idea of work being done as a charge moves across them but not along themSlides #7 and #8 define potential gradients in electric fields and give the formulae required to calculate them. Again, links to contours and height are very useful here. |
| **Plenary:** | Slide #9 is a summary |
| **Homework:** | Page 368 questions |
| **Differentiation / Extension / S&C** |
| Get pupils to draw graphs of electric potentials with distance using cross sections from drawings done around non-uniform fields |
| **Numeracy / Literacy** | **SMSC / Fundamental British Values** |
| Formula use and calculations of gradients | N/A |
| **RESOURCES:** |
| Optional – Van de Graff generator |
| **Risk Assessment** e.g. CLEAPSS card reference |
| Electrical equipment, people with pace makers or similar items should not be close to the generator |
| **Working Scientifically (HSW)** |
| N/A |

Field line diagram courtesy of: By Sjlegg (Own work) [Public domain], via Wikimedia Commons