

# Equipotentials

## Apparatus

low voltage power supply, electrodes (at least 2 plate or point electrodes), teledeltos (conducting) paper, voltmeter with probes

The electrodes are connected to the positive and negative terminals of the power supply and a sheet of teledeltos paper is placed over the electrodes.

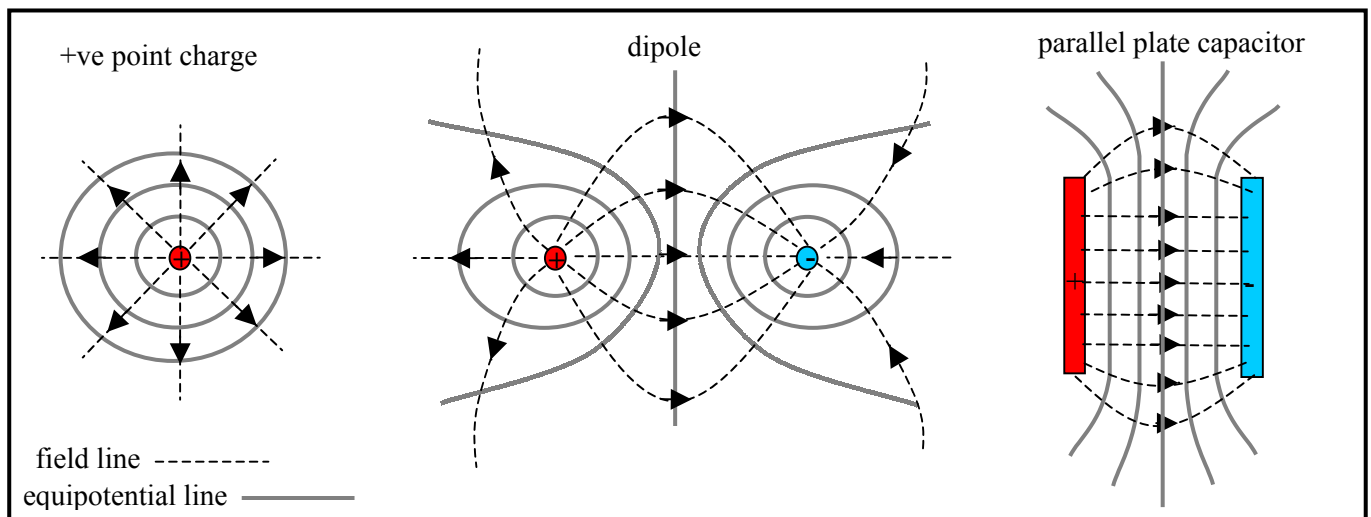
## Action

One probe of the voltmeter should be connected to or held against a chosen reference point, for example one of the electrodes. The other probe is moved around the surface of the paper to find points of equipotential. The students should map out several lines of equipotential. They can then sketch the equipotential lines for the arrangement of electrodes and use these to draw field lines.

If other electrodes are available, for example plate electrodes, the students can investigate the potential between the plates of a parallel plate capacitor and other arrangements.

## The Physics

Equipotentials are surfaces which have the same value of electric potential. Some examples are shown below. Field lines represent the magnitude and direction of forces. Field lines are perpendicular to equipotentials, so you can use equipotentials to draw field lines.



## Accompanying sheet

### Equipotentials

Use the probes to find lines which have the same potential all the way along them.

These are called equipotential lines.

How can you use these lines to draw field lines?