Interim Report Outline

1 The T2K Experiment

- Introduction to the experiment

- Main aims of T2K

- Main components and geometry (link into ND280 section)

2 The ND280 Detector

- Purpose of the ND280

- Components of the ND280

- More detail on relevant detectors (FGDs and TPCs)

- Data which can be extracted (mention focus on NCQES here)

3 Theory Behind Neutral Current Interactions

- NC vs CC, mention small coupling ratio $\Rightarrow$ rare interaction

- Quasi elastic, resonant and deep inelastic scatterings

- More detail on NC elastic scattering

- Expected properties of outgoing protons - link to next section

4 How to Isolate Desired Interactions

- Breakdown of data available from simulations (true data and reconstructed)

- Potential problems with noise due to other reactions, expected causes of noise

- Introduction to cuts to help improve signal/noise ratio

- List of cuts which it may be useful to make and why

5 Progress So Far and Next Steps

- Have learned to use software, and ND280 libraries

- At a stage to start applying cuts

- Possibly apply selected cuts to actual data