Four coordinate complexes are typically tetrahedral or square planar. Imagine instead a hypothethical trigonal-based pyramidal geometry where three of the ligands and the metal all lie in the plane of the base of the pyramid.

1. Draw a representation of the 3 dimensional structure.
2. Assign the point group. When you think you have this, call me over to look at your answer. Once you’ve told me the correct point group I will give you the group table.
3. Apply your critical thinking skills and the information available in the group table provided to predict the d orbital splitting diagram.
4. Fill in the diagram for a high spin d4 complex.
5. Write out the d electron configuration, (parallel to the t2gxegy format)
6. Calculate the spin only magnetic moment in terms of μB.