1. Post-mortem on Kleinian groups seminar

- Necessary to have more examples earlier on. This is hard without introducing the polyhedron theorem early, which Maskit leaves until chapter VI.
- We overemphasised the algebra.
- We should have talked about 3-manifold topology pre-Thurston more.
- Even though it wasn't graded, we should have had problem sheets, just for people to look at.
- There must be a better way to do the Riemann surfaces material needed.
- Would be nice to get to moduli spaces as well.
- A more unified treatment of discontinuity on both $\hat{\mathbb{C}}$ and $\mathbb{H}^3$ would be better, more like Ratcliffe.
- We should have talked about mapping class groups earlier on.
- We overemphasised the classification of elementary groups.

Maybe a better sequence would be:

(1) Conformal maps; sphere inversion; equivalence $\mathrm{PSL}(2,\mathbb{C}) \simeq \mathbb{M}$.
(2) Geometry of conformal maps (e.g. isometric spheres). $\hat{\mathbb{C}}$ as the boundary of $\mathbb{H}^3$. Poincaré extension.
(3) Classification of fractional linear transformations. Discontinuous actions. The limit set.
(4) Riemann surfaces, inc. uniformisation. Quotients of $\mathbb{H}^3$ are hyperbolic manifolds and orbifolds.
(5) Fundamental domains. Poincaré polyhedron theorem. Maskit theorems.
(6) A zoo of examples. Geometrically finite groups.
(7) Teichmüller theory. Mapping class groups.
(8) Quasi-conformal maps. λ-lemma. Quasi-conformal deformation spaces.
(9) Quasi-Fuchsian groups. B-groups.

Which is basically much of the material in Maskit plus quasi-conformal theory and minus the chapters on function groups, isometry groups, and the proofs in chapter VII. It also leaves time for problem classes, in which we can place many of the interesting things we can't talk about (e.g. hyperbolic convex hulls, quaternions, Margulis lemma, Fuchsian groups).