Breakout session on "Lab Learning Outcomes"
Thursday 4th June 2020
Report by Alison Voice, University of Leeds

Skills to assess:

- Experimental planning
- Use of equipment
- Data acquisition
- Data analysis
- Uncertainties and assessment of reliability, (prompting a revision of expt planning -and so the cyclic process starts again)
- Scientific communication

To develop progression of all these throughout the years (from Foundation year, through Bachelors and masters) to produce students as independent researchers ready for final year project, PhD or Industry. (The matrix Aidan showed looked good).

We need to move away from asking students to follow a recipe, or to measure a fundamental constant, because they focus too much on getting the 'right answer' and not enough on the experimental process. Better to ask them to measure something (like spacing of grating, spring constant) where they do not know the expected value. Even better, ask them to do 2 methods of measuring it, and compare the methods.

Specifically for virtual delivery we need to decide which of all those learning outcomes can be done:

- At home as paper exercise, or with 'kitchen equipment'
- By simulation / virtual lab
- Must be in an actual lab.

We had some discussion of a hybrid model (some choices below)

- SEM 1 at home : SEM 2 in lab
- Some expts at home : some in lab (across both semesters)
- Some students at home (if vulnerable or abroad): some in lab (Maybe pair up students in this case (one home, one in lab) to share experience and data.