## 5 When should we introduce mathematical techniques?

Some teachers are discussing a case study that will take 3-5 maths lessons.
They decide that pupils will make more progress if they have a sound knowledge of *X*, where *X* represents any technique or area of knowledge.

The teachers are trying to decide whether to teach *X* before, during or after working on the case study:

| | |
|---|---|
| **Before?**<br><br>"I'll teach them about X in the week before we do the case study, so that when we come to do the case study, pupils will be able to apply this technique/knowledge." | **Advantage**: pupils will have techniques polished and ready to use.<br><br>**Danger:** case study becomes an exercise in technique, rather than an opportunity to develop autonomous problem solving strategies. |
| **During?**<br><br>"We'll start the case study, and if pupils get stuck, we'll break off working on the case study for a lesson or two, and I'll give them practice with X. | **Advantage**: You can respond to needs as they arise.<br><br>**Danger:** if pupils expect you to bale them out when the going gets difficult, you reinforce dependence and undermine autonomy |
| **After?**<br><br>"We'll attempt the whole case study and I'll see how pupils get on. Afterwards, I will introduce them to X and refer back to the case study to show them what a powerful idea it is." | **Advantage**: The experience of working on a case study may motivate and enable pupils to perceive the value of techniques when they are taught.<br><br>**Danger:** Pupils may still not be able to use techniques autonomously, unless they are given further opportunities to apply them in further case studies. |