# Chapter 11 Taking measurements

## Additional self-test questions

**Q11.1** In the book, we consider a situation where we have seven samples from a control group and seven samples from a treatment group. We said: 'These 14 samples should be measured in a random order (or possibly in an order that alternates control and treatment samples)'. What are the arguments for measuring at random versus alternating individuals between the two groups?

**Q11.2** During an angling competition on a small lake, you want to record the weight of each pike caught and the time it was caught, to allow you to look for an effect of time of day on the behaviour of different sizes of fish. How would you minimize inaccuracy and imprecision?

**Q11.3** You want to compare activity of chimps in Berlin Zoo and the Bronx Zoo in New York: how will you ensure consistency of measurement?

**Q11.4** Imagine that as part of a citizen science project you organize members of the public to walk designated same-length transects around a major city at the same time and record the birds that they see. How best should you obtain consistency?

**Q11.5** Explain floor and ceiling effects in your own words. Why are they a problem in experimental design?

**Q11.6** In your own words, explain why it would be good for a person measuring experimental units to be blind to the treatment group that a particular unit belongs to.

**Q11.7** When would this be impractical?

**Q11.8** If blinding would be desirable but impractical then what mitigating steps can you take?

**Q11.9** A new vegetarian dog food claims to give improved coat condition within two weeks. How would you test this claim?

**Q11.10** In the experiment above, how would you measure coat condition?

**Q11.11** Exam books are designed so that the name of the student is unavailable to the marker. Discuss the reasoning behind this in terms of blind procedures.