

Synchrotron Investigations

7.4 Time

In this activity you will be estimating time, trying to improve your ability to do this and evaluating your success.

To complete this activity you will need to work in teams of two or three. If you have not already done so, form a suitable team. Do not have more than four people in a team; two or three work best.

One person will be the timekeeper and the others will be making estimates. Read through all of the activity instructions before you begin, and consult your teacher if you have any questions.

Materials

- A watch or stopwatch that has an easily viewed second hand (or second counter if digital).

Instructions for teams of two

1. The timekeeper says 'start' and *silently* keeps track of the passing time using the watch or stopwatch.
2. The estimator must try to estimate when 30 seconds has passed by saying 'stop'.
3. *Without telling them how good their estimate was and without letting them see the results*, the timekeeper should record their partner's results on their worksheet.
4. Repeat steps 1 to 3, twice.
5. You should now have a total of three estimations.
6. Show the estimator their results.
7. Repeat steps 1 to 3 for a further five estimates, but for these times give the estimator feedback on their guess after each one.
8. Swap roles so that the timekeeper can collect their own estimates.

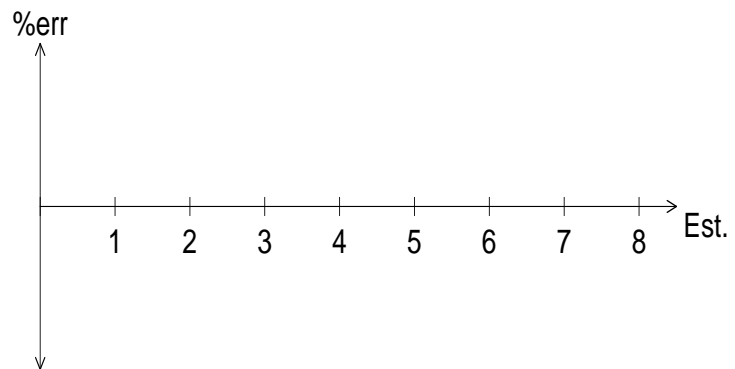
Instructions for teams of three or four

The procedure is quite similar except that:

- The people doing the estimates must keep their eyes closed so they don't get any clues from the other estimators in the team. When they think the 30 seconds is up, they must signal *silently* by waving or raising their hand.
- The timekeeper's job is slightly harder since they must track two or three people all at once. As each person waves or raises their hand, the timekeeper must make a note, *without saying anything*, of their actual time. When everyone has made their estimates then you can record the times on their worksheets. In the second set of estimates, share results *after* the last person has signalled 'stop'.

- Record your individual results in the table below, calculating the percentage error for each one. Graph your percentage errors on the axes provided, choosing an appropriate scale for the vertical axis.

| Estimate | % error |
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- Comment on any trends shown in your percentage errors.
 - during the first three estimations
 - during the second five estimations.
- Would you expect to see a difference between the first three values and the second five values? What would you expect to see and why?
- Most people expect an improvement in their ability to estimate time, when feedback is given. Choose a partner and, together, devise and perform an experiment to decide whether this statement is true. Record your method, results and conclusions and submit them to your teacher.