IDEA 99

CUBES IN AN ENVELOPE

This is a probability-based task and is about trying to predict the proportion of an 'unknown' data set through sampling. The task requires A4 envelopes and linking cubes.

Cubes of two or three different colours are placed in each envelope and on the front I write the total number of cubes the envelope contains and a letter to code/identify it. For example, an envelope marked '10 cubes' and 'A', could contain seven green and three white cubes, an envelope marked '9 cubes' and 'B' might contain four red, three yellow and two blue cubes, etc.

I set up the following procedure using, for example, envelope 'A'. I ask each student in turn to remove one cube, call out the colour and replace it, taking care not to look inside the envelope.

I ask a volunteer to record the number of cubes and the colour on the board. After approximately half the students have each drawn and replaced a cube I ask the recorder to tally up the totals in reference to the data now collected. I ask everyone else to make a prediction of what they think the proportion of colours of cubes is in the envelope.

The experiment continues until everyone has had a turn and again I ask everyone to make a second prediction or to stick with the original one. I shall ask some individuals to say what predictions they have made and try to justify their results by explaining how the data has influenced their thinking.

Finally I empty out the answer to reveal the contents of the envelope.

Students then carry out further experiments in pairs using different envelopes. I ensure there are sufficient envelopes for each pair plus two or three extras. This means students can (and will) work at different speeds.

IDEA 100

TESTING, TESTING

An approach to testing I have found useful, for a number of reasons, is one where I invite students to write test questions, say for an end-of term assessment. The method works as follows.

At the beginning of a lesson two or three weeks from an end of term I review the different topic areas a class has worked on. This might involve asking students to try to remember what each topic has been about, and to do this they might work in pairs or small groups. At this initial stage I ask students not to refer to their exercise books or folders.

Having achieved a complete list I ask students to consider what kind of questions they think would be a good way of assessing their learning, particularly in terms of fairness and being able to understand the questions.

Students are then asked to write two or three questions relating to the topics; to ensure 'coverage' of the terms' work pairs or small groups can be allocated one or two topic areas.

At the end of the lesson I collect all the questions in and decide which ones are going to be the most useful to fit the purpose of the test. I may add some of my own or make changes to the wording of certain questions.

I type up the questions and give the completed test paper to students, whereupon their homework for the final couple of weeks is to revise for the test.

In the test lesson I give students a 'new' copy of the paper and ask them to write their answers on new pieces of paper.