WORKSHOP ONE – workshop details

Timing	Detail	Resources
5 mins	Introduction to the session Building conceptions of populations and samples and the connections between them. Room set up with cards on the table.	PPT
5-10 mins	Introduction to the Karekare College population data set. Getting the background information about the measures made on the population. • Hand out each group a set of Karekare College cards. • Explain that each pack contains the population of Karekare College students (units), one data card represents one student at the school. While the school is invented, the students are selected from the 2009 C@S participants. • The cards have information about 13 variables (measures made on the population). One variable is indicated by the colour the remaining 12 are on the cards themselves. • A few minutes to study the questionnaire and see what variables they can identify. • Collate the variables on the board, remembering to question about why they thought it was a particular variable and not another. Questions that can be asked about each variable. 1. What was the survey question asked to collect the data? 2. Who was surveyed? By whom? When? 3. How was the variable measured? 4. What are the units, if any, for the variable? 5. What are the possible outcomes for the variable? 6. What type of data is it? Categorical or numerical? • What type of variable are the ones in the left hand column? What type of variable are the most of ones in the middle and right hand columns? Which one(s) are not measurement variables? • Handout details re: Karekare College.	C@S questionnaire 2009 Karekare College data cards PPT Workshop1 – handout1

5 mins	Investigative questions to explore Within a group of four pick two different questions to explore. Choose from: • *Do the heights of Karekare College boys tend to be greater than the heights of Karekare College girls?* • *Do the popliteal lengths of Karekare College boys tend to be longer than the popliteal lengths of Karekare College girls?* • *Do Karekare College students who walk to school tend to get there faster than Karekare College students who take the bus?* • *Do Karekare College students who go by car to school tend to get there faster than Karekare College students who take the bus?* • *Do Karekare College students who go by car to school tend to get there faster than Karekare College students who walk to school?* Predict and draw the population distributions for the variable in the question. Show one population distribution relative to the other, eg. Heights of boys, heights of girls Give a rough indication of the range of values they expect. What does tend to mean? How would you go about answering your question? Think like a year 10 student, what will they want to do? *Teachers story of what the kids do, find the average, or graph the whole lot.* *Year 12 class, to answer the question "what are typical weights of kiwis?" proposed to find the average, that is take each of the 700 birds in the population, add their weights up and divide by the number. So away they went, after about 5 mins one student said "I don't think so Miss", "Why not?", "Take too long"… and from there the need to sample arose.* *Year 10 class, started to graph all of the data for Karekare College, after a wee bit they realised that the shape was staying similar, they were running out of room on their table (making the graph with the data cards), and it was taking a long time… from here the need to sample arose.* Set the students up for the need to take a sample.	PPT (and on back of workshop1-handout1)
10-15 mins	Selecting samples, drawing dot plots and box plots. Logistically they will have one bag between four people. They will have to take the samples from the same bag. Between the four they explore the two questions (a pair do one question and then they share information). Agreement to do about 30 (a handful) not addressing random sampling at this stage.	Pre-prepared graph plots. PPT

10-15 mins	Descriptions of their graphs. Purpose of descriptions: • Insight comes from looking at the data • Look and notice important things that are going on. Training about what to look at and what to look for • Why? To check assumptions for formal methods for later on. • Looking for anything interesting, unusual or unexpected. This may require further investigation. • Want to become good lookers at data – data detectives Get egs of descriptions up on the board. Actively reflect on these. That is make them context rich and correct/relevant statements.	Exemplar to give out and Write on sheet to do descriptions. Workshop1-handout2
5-10 mins	Compare and contrast samples. What is similar, what is different? Look for same question.	PPT
	Wrap up. 1.Link between sample and population 2. Students need to experience the need to sample. 3. Describe sample distributions and then think about the population distributions. 4. Predict population distributions. 5. Care with language, these boys, these girls.	PPT Back of handout workshop1-handout2.