The Scottish Mathematical Council

MATHEMATICAL CHALLENGE 2015-2016

Entries must be the unaided efforts of individual pupils.
Solutions must include explanations and answers without explanation will be given no credit.
Do not feel that you must hand in answers to all the questions.

Primary Division: Problems II

P2.1. Susan has a bag of jelly babies. The bag contains seven red jelly babies, four orange jelly babies and six yellow jelly babies. What is the smallest number of jelly babies she must take out of the bag (without looking) to be sure of having one of each colour?

P2.2. An old farmer went halfway home by horse and cart, 15 times as fast as he could walk. He travelled the rest of the way on his stubborn donkey, which walked at half the pace of the farmer. Would he have saved time if he had walked the whole way ? Explain.

P2.3. Messrs. Baker, Butcher, Farmer, Joiner and Plumber are all residents of the small village of Haar. They are the sons of a baker, a butcher, a farmer, a joiner and a plumber, who are all retired, and they themselves work as a baker, a butcher, a farmer, a joiner and a plumber. None of the five has a name which is that of his father's occupation or of his own occupation; and none follows his father's occupation. None has, as yet, a son of his own.
Here are five clues to help you find out the occupation of each of the five villagers and the occupations of their fathers.
1. The retired plumber's son is engaged to a girl in the neighbouring village of Smirr.
2. The village badminton team, which has four players, consists of Mr Baker, Mr Plumber, the retired butcher's son and the joiner.
3. Mr Butcher and the retired baker's son married sisters.
4. The village folk group, HearHaar, is made up of the retired farmer's son on guitar, the plumber on fiddle and Mr Butcher on percussion.
5. The joiner is the only unmarried man in the list.