QUAKE CAKE

April the 18th is the anniversary of the 1906 San Francisco earthquake or Great Fire as it used to be called. By chance it also happened to be the 17th birthdays of two of my students. So I made a special Cake to demonstrate some earthquake hazards.

Buy a slab of fruit cake about 5cm thick and about 25cm by 30cm across. Sponge cake is cheaper but is too soft. Ice the cake and then cut it lengthways into equal halves. Place each half on a board just a little bigger than the half cake. Each board has a small piece of wood attached to it, as you can see in the photo, to stop the cake slipping. Now place the cake and the boards together on a larger board and nail two strips of wood loosely either side of the cake boards to stop them moving apart

While the icing is still damp place on the surface two small containers. The bottom centimetre of a small yoghurt carton makes an ideal container. Label one of these "reservoir" and the other "petrol tank". Skyscrapers can be made with liquorice Allsorts, roads, railways, and pipelines can be made with coloured icing. Pylons can be made with matchsticks and thin string.

Shortly before use fill the reservoir completely full with water. Wet the icing along the "fault" and smooth it to reseal the join but be careful not to smudge the roads or railways. Stand a candle without a holder on the icing near the petrol tank so that when it falls it touches the tank. Place a small piece of cotton wool in the tank on the side nearest the candle. It should come a little bit above the side of the tank. The petrol tank is now filled with brandy and the candle lit.

We had some class discussion about the likely effects and hazards of earthquakes after which they were shown the cake. All the students were then arranged around the cake and the birthday boy and girl placed so that they could push opposite sides of the cake in opposite directions.

The students push very gently to start with causing oblique shear joints to appear in the icing. Then the icing gives way and the two sides slide rapidly past each other. The liquorice buildings will fall over, the roads, railway and pipe line will brake and the lighted candle should fall onto the

brandy soaked cotton wool and then light the tank. The water will slop out of the reservoir.