Puzzle of the Week
Pan Balance – 4

A pan balance tells you when its two sides are carrying the same amount of weight or whether one side is heavier than the other.

THE CHALLENGE: You have 6 coins. Four of the coins weigh the same amount, and the remaining two coins are lighter counterfeits. Identify the two counterfeits using just three weighings.



EXPLORATION: Investigate what happens to your method if there are more normal coins.

Puzzle of the Week
Pan Balance – 4 – Notes

THE CHALLENGE: Start by forming two groups of three coins and weigh these two groups against each other.

If they balance, then there must be one light coin in each group. For each group of three, do the following. Weigh two of the coins in the group of three - if they balance, the remaining coin is the light one; if they don't balance, the lighter coin is the light one.

If they don't balance, then both light coins must be in the lighter group of three. Weigh two of the lighter group coins against each other - if they balance, they are both lighter coins; if they don't balance, then the lighter one and the remaining coin are the two lighter coins.

EXPLORATION: This method is dependent on having groups of three. So, for more than six coins we will need more than two weighings.