Problem Solving- Mixed Problems

1. **Legs in the Barn-** One third of animals in the barn are chickens. The rest are pigs. There are 20 legs in total. How many pigs are there?

2. **The Movies-** Jo, Jack and John have seats for the movies. Their seats are F5, F6 and F7. How many different ways can they be seated?

3. **Copycats-** Sara has just discovered copycats. A square is a copycat because you can put four of them together to make another square. Sara wonders if triangles and circles are also copycats. What do you think?

4. **Take Two-** Play the strategy game take two with a partner. Place five objects in a row. Take turns removing one or two objects each go. The person to remove the last object is the winner. Can you find a strategy so that the first player always wins? Is this a fair game?

5. **The Watch-** Alex bought a watch for £50. Unfortunately it gains 30 minutes every day! If Alex set his watch at noon one day, how long would it be before it correctly shows 12 o'clock again?

6. **Coin Toss-** When you toss 2 coins at once, will they usually land with the same side up or different sides? Try this out a few times and show your working.

7. **My Dogs-** I have 3 dogs of different ages. If I add their ages together I get 15. If I multiply their ages together I get 45. How old are my dogs?

8. **No Three in a Line-** Hannah has a square crate that can hold 9 cartons of milk. Can she put 6 cartons in to the crate so that no 3 of them are in a line? If so, in how many ways can she do it? If not, why?

9. **Shaking Hands-** Six people meet for a business meeting and shake hands with each other. How many handshakes were there?

10. **Birthday Card-** Niko and Katie buy their friend a Birthday card. The card costs £5.90. Niko puts in 40p more than Katie. How much do they each contribute to the card?

Challenge- Choose a random number between 1-52 using a pack of playing cards or an online number generator. This number is the solution to a maths problem that YOU make up. What is the problem?