Labrador Breeding Game

In your kennels you have three female dogs and three male dogs to mate together –

FEMALES:	MALES:
Barley	Alfie
Rummie	Petra
Gloria	Bear

There are two coat colours: -

Black

Chocolate

Every puppy = 2 coat colour genes

1 gene from their mum + 1 gene from their dad

The gene with the most points wins

Black gene = 2 points **Brown gene = 1 point**

From every litter you get 4 puppies

Black puppies cost £100 **Chocolate puppies cost £200**

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Aims of the game:

- To work out what colour puppies you get when you mate different parent dogs and how much money you make from each litter
- To work out the coat colour of the parent dogs and which coat colour genes they have

Instructions

1) Get into partners.
2) Collect your 12 gene cards from your teacher (you have 2 cards for every dog because they each have two coat colour genes).
3) Spread the cards out on your desk with the gene colours facing down and the names of the dogs facing towards you.
4) Mix all the cards around on your desk.
5) Choose one female and one male dog to mate together – write the names of these dogs on the answer sheet under **Mum** _____ X **Dad** _____ for **cross 1**.
6) Once you have decided which dogs to mate pick 1 card from the **mum** and one from the **dad**. Turn the cards over to see what colour gene each parent gives.
7) On the answer sheet write down what colour gene the **mum** and **dad** gave you and use the point system to work out what colour puppy 1 is. Remember it is the gene with the most points that wins.
8) Put the cards back on your desk with the gene colour facing down so you only see the names of the dogs and mix them all up again.
9) Pick another card from the same **mum** and **dad**. Score the results on the answer sheet and work out what colour puppy 2 is. From every litter you get 4 puppies so pick one gene card from the **mum** and one from the **dad** a further two times for puppy 3 and 4. Make sure that the cards are mixed between puppies so that every time you pick a gene card it is at random – like it is in nature.
10) Work out how much money you will make when you sell all 4 puppies from this litter

11) Try to work out what colour the parents you crossed are. Think about what two coat colour genes they have to have produced the puppies they did. Write your answer into the table **'Answers to colours of mums and dads'**. Write you answers in pencil so you can rub it out if later crosses change your minds.
12) Choose a different pair of **female** and **male** dogs to mate together and repeat the steps (5-11) to work out the colour of each of the four puppies and the colour and genes of the parents you mate in **cross 2.**
13) Do this again with the two dogs you haven't yet mated for **cross 3.**
14) By now you should be able to work out the coat colour and the colour genes the parents have. If you are still unsure use **cross 4** to try to help you work it out. If you have worked out the answers then you could use cross 4 to make sure you are right or to make more money just for fun if you have time.
15) Finally make sure that you have understood the process by agreeing on the right answers as a group.