Five dice game I

This task is about predicting and calculating combinations.

Practical Task

						
Example	2	3	1	3	4	One pair (of 3's)

When five dice are thrown these are the **seven** different types of number combinations they can have on them:

Combination	Example
1. All dice different	1, 2, 4, 5, 6
2. One pair	1, 2, 3, 3, 4
3. Two pairs	2, 2, 5, 5, 6
4. One triple	1, 4, 4, 4, 5
5. One triple + one pair	2, 2, 3, 3, 3
6. Four dice the same	3, 6, 6, 6, 6
7. Five dice the same	4, 4, 4, 4, 4

a) Using the combinations listed in the table, rank how often you would **predict** each one to occur, from **most** likely to **least** likely.

i) **most** likely combination _____

ii) _____

iii) _____

iv) _____

v) _____

vi) _____

vii) **least** likely combination _____

b) Throw the five dice **100** times and record your results in the table below.
You may work with a partner when you throw the dice.

Combination	**Tally**	**Frequency**
1. All dice different		
2. One pair		
3. Two pairs		
4. One triple		
5. One triple + one pair		
6. Four dice the same		
7. Five dice the same		

c) Use your results to calculate the probability of

i) all dice different (i.e., combination number 1) _____

ii) one pair (i.e., combination number 2) _____

d) What would you do to get a more accurate estimate of all the probabilities?

_____

_____

Complete c) and d) by yourself and get your teacher to mark them.

e) In the table below:

- Record the results from at least four sets of 100 trials.
- Add these up for each combination and put the total in the "Total'" column

Combination	**Group 1**	**Group 2**	**Group 3**	**Group 4**	**Total**
1. All dice different					
2. One pair					
3. Two pairs					
4. One triple					
5. One triple + one pair					
6. Four dice the same					
7. Five dice the same					

f) Looking at the "Total" column, rank all the 7 combinations from the **most** likely to the **least** likely according to how often each type of combination **actually** occurred.

i) **most** common combination _____

ii) _____

iii) _____

iv) _____

v) _____

vi) _____

vii) **least** common combination _____

g) Compare the **actual** results in f) with what you **predicted** in a). Give the number(s) of the combination(s) for which your prediction was

i) **least** accurate? _____

ii) **most** accurate? _____

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