**Color Up**

* **Please be careful with children handling the dice. Dice should never go in their mouth as they can be a choking hazard!**

**Dice Legend**

| Black Dice | Addition |
| --- | --- |
| Red Dice | Subtraction |
| Green Dice | Multiplication |
| Purple Dice | Square & square root |
| White Die | Operators, + - x |
| White Numbers  “Basic” | On 8-sided dice will have the numbers 2-9 |
| Yellow Numbers  “Advanced” | On 8-sided dice will have the numbers 6-13 |

* **For each game we recommend that the players each roll a basic black die and the player that gets the highest roll gets to choose first. The other players will then go in order starting with the player to the first players left.**

**Type of Game:**  This game is a competitive game. The winner will not be determined by their addition or multiplication skill.

**Who Should Play:** All levels, from players just learning to add and multiply to players that have mastered these skills

**Materials Needed:** All four addition dice and the two basic multiplication dice

**Skills Reinforced:**

* addition with four dice (die values range from 2 to 13)
* multiplication (ranging from 2 to 9)
* the concept of range (for adding the black dice their score could be from 16 to 44, multiplying the green dice their score could from 4 to 81)
* Grouping dice together to simplify adding.
* In Advanced play square roots and perfect squares are used.

**How to play**

* **Basic level**
* One player grabs all 6 dice and asks their opponent which color they would like, either black or green.
* If the player chooses black, their score for that round will be found by adding all of the black dice, if they choose green their total will be the found by multiplying the two green dice.
* The player that has the higher total will win that round. The dice will be given to the other player and the rolling and choosing the desired color will be repeated.
* If a player wins a round they score 1 point. The recommended length of a game is the first player that wins four points wins the game.
* The concept of range can be used. If the players look at the green dice first and get their value, they will know if they need to add up the black dice to determine the winner (i.e. if the score of the green dice is smaller than 16 or greater than 44 than players should know which die (green or black) will have the greater value.
* This is a very basic version of ColorUp.In Variation 1 and beyond a running score is kept, allowing both practice in calculating your running totals and a “choosing” strategy of which color the trailing player wants.
* **Variation 1**
* The winner will be determined by the first player to score 200 points. (You pick the total.) 100 is plenty for beginning players and a game to 300 will not take too long. This will require that players are able to add the totals from each round. Your score from each turn is simply the product of the two green dice if you chose green or the total of the four black dice if you chose black.
* After the first turn, whichever player has the lowest total score gets to pick what color they want on the next turn
* **Variation 2 “Bingo, Bango, Bongo”**
* With three players, the same basic game rules are used as in variation 1 Two players will play the same way, with the third player declaring either “Bingo”, “Bango” or “Bongo”.
  + If the third player says “Bingo” they are predicting that the black dice sum and the green dice product will be either the same or within one. If this happens, the declaring player gets 50 points and the other two players get zero for a score in that round. This will rarely happen.
  + If the third player says “Bango” they are predicting that the black dice sum and the green dice product will be either the same or within four. If this happens, the declaring player gets 25 points and the other two players lose 15 points from the score they earned in that round.
  + If the third player says “Bongo” they are predicting that the black dice sum and the green dice product will be either the same or within eight. If this happens, the declaring player gets 25 points and the other two players get the score that they earned for that round.
* Suggested length of the game is 6 total turns including all players with the winner scoring the most points. The choosing will rotate. Each player will get to call “Bingo”, “Bango” or “Bongo” twice, and the player with the lowest score of the two players rolling still gets to pick the color they want.
* **Advanced Color Up (3 Player)**
* With three players, the dice used will be different than the other variations. The same two green dice and four black dice will be used, with the addition of the two purple square root dice and the white operational dice plus a red basic subtraction dice and red advanced subtraction dice can come into play.
  + The black and green dice will be scored the same way.
  + The purple dice total will be determined using the values on the purple dice as well as using the white operational dice to determine the purple dice “score”. Hence if the white operational dice is multiplication then the purple dice are multiplied, addition they are added. In order to keep the scoring even between the three colors, the purple Square root dice will never be subtracted. Even when the operational dice says “subtract”, the square root dice are still to be added. Even when they are added, the square root dice are at a significant disadvantage to the green and black dice. To balance the scoring between the colors the three red dice are rolled. They will only be used when the white operational dice says to subtract, and they will be subtracted from the players totals who are NOT rolling the purple square root dice.When three players are playing the total of the two biggest red dice rolled will be subtracted from the player whose color had the highest total and the total of the two smallest red dice will be subtracted from the other player.When four players are playing (see below) and the white operational dice says to subtract whoever rolls the highest score must subtract the total of all three red dice (possibly resulting in a negative total for the turn) while the second highest scorer subtracts the total of the two biggest red dice (still possibly resulting in a negative total) and the player with the smallest total subtracts the total of the two smallest red dice. Remember, whoever rolls the square root dice never has to subtract them, nor do they ever subtract the red dice from their total.
  + Suggested length of the game is to play to 300 but players are welcome to play to whatever total they would like. If two or more players achieve the 300 point level, the player with the highest total will win. **During each round the player that is behind chooses their color first, the second place player chooses second and the leader gets the remaining color.**
* **Advanced Color Up (4 Player)**
* With four players, the same dice and rules will be used as with the 3 player “Advanced version”. The only addition to the game is the purple “perfect square” die is added to the dice choices.
* The perfect square dice are easily the “best” option for a high score and will typically be taken by the player with the lowest total. That allows for great “comeback” potential for players, even when they are significantly behind. That said, the perfect square dice also represent the biggest risk, as once out of every twelve rolls they will get a 2 squared for only 4 points, and while the green multiplication dice can also get a 2 times 2, it will only happen once every 64 rolls. The square root dice can also get a 4 by rolling 2 plus 2, but that will only happen once out of every 96 rolls, while the slow but solid black dice will keep cranking out totals between 16 and 44. Your choice! Way too many possibilities to describe them here, but lots of choices and lots of opportunities to discuss why you made your choice for players at this level
* Suggested length of the game is to play to (at least) 400 but players are welcome to play to whatever total they would like. If two or more players achieve the 400 point level on the same turn (remember, everyone gets the same number of turns in every ColorUp version) the player with the highest total will win. **During each round the player that is behind chooses their color first, the second place player chooses second, third place chooses third and the leader gets the remaining color.** Finally, remember that more than four players can play simply by adding the “Bingo, Bango, Bongo” option for additional players. In this case, it is important to play a certain number of turns rather than to a certain score, so that each player will have the “Bingo, Bango, Bongo” option the same number of turns. Also, remember that the “Bingo, Bango, Bongo” option is based solely on comparing the scores of the two green and four balck dice, but the points are assigned to all of the players as described in the “Bingo, Bango, Bongo” directions.

.