The box contains 6 red, 4 blue, and 4 green marbles, for a total of

$$6 + 4 + 4 = 14$$

marbles. The total number of ways to choose 6 marbles is $\binom{14}{6}$ ways.

We want the probability that at least one marble of each color is chosen. This is most easily done using complementary counting and inclusion–exclusion.

First, we count the selections missing at least one color.

If no red marbles are chosen, all 6 marbles must come from the 8 blue and green marbles, which can be done in $\binom{8}{6}$ ways.

If no blue marbles are chosen, all 6 marbles must come from the 10 red and green marbles, giving $\binom{10}{6}$ ways.

If no green marbles are chosen, all 6 marbles must come from the 10 red and blue marbles, also giving $\binom{10}{6}$ ways.

Next, we add back selections missing two colors.

Choosing only red marbles is possible in $\binom{6}{6} = 1$ way. Choosing only blue or only green marbles is impossible since there are only 4 of each.

By the Principle of Inclusion–Exclusion, the number of selections missing at least one color is

$$\binom{8}{6} + \binom{10}{6} + \binom{10}{6} - \binom{6}{6}.$$

Therefore, the number of favorable selections is

$$\binom{14}{6} - \left(\binom{8}{6} + 2\binom{10}{6} - \binom{6}{6}\right).$$

Now compute the values:

$$\binom{14}{6} = 3003, \qquad \binom{8}{6} = 28, \qquad \binom{10}{6} = 210, \qquad \binom{6}{6} = 1.$$

Thus, the number of favorable outcomes is

$$3003 - (28 + 420 - 1) = 2556.$$

The desired probability is

$$\frac{2556}{3003} = \frac{852}{1001}.$$

$$\boxed{\frac{852}{1001}}$$