

# TODAY'S AGENDA: March 27-28

- Work on Khan Academy Mission:
  - > Probability
- Today's Objective: Large-Group Lesson:
  - > Probability with Combinations and Permutations
- Today's Standard:
  - > Summarize, represent and interpret data on a single count or measurement variable.

# Probability with Combinations & Permutations

Probabilities are fractions!

$$P(\text{something}) = \frac{a}{b}$$

Want  

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Everything

There are 7 students in a class: 2 boys and 5 girls.

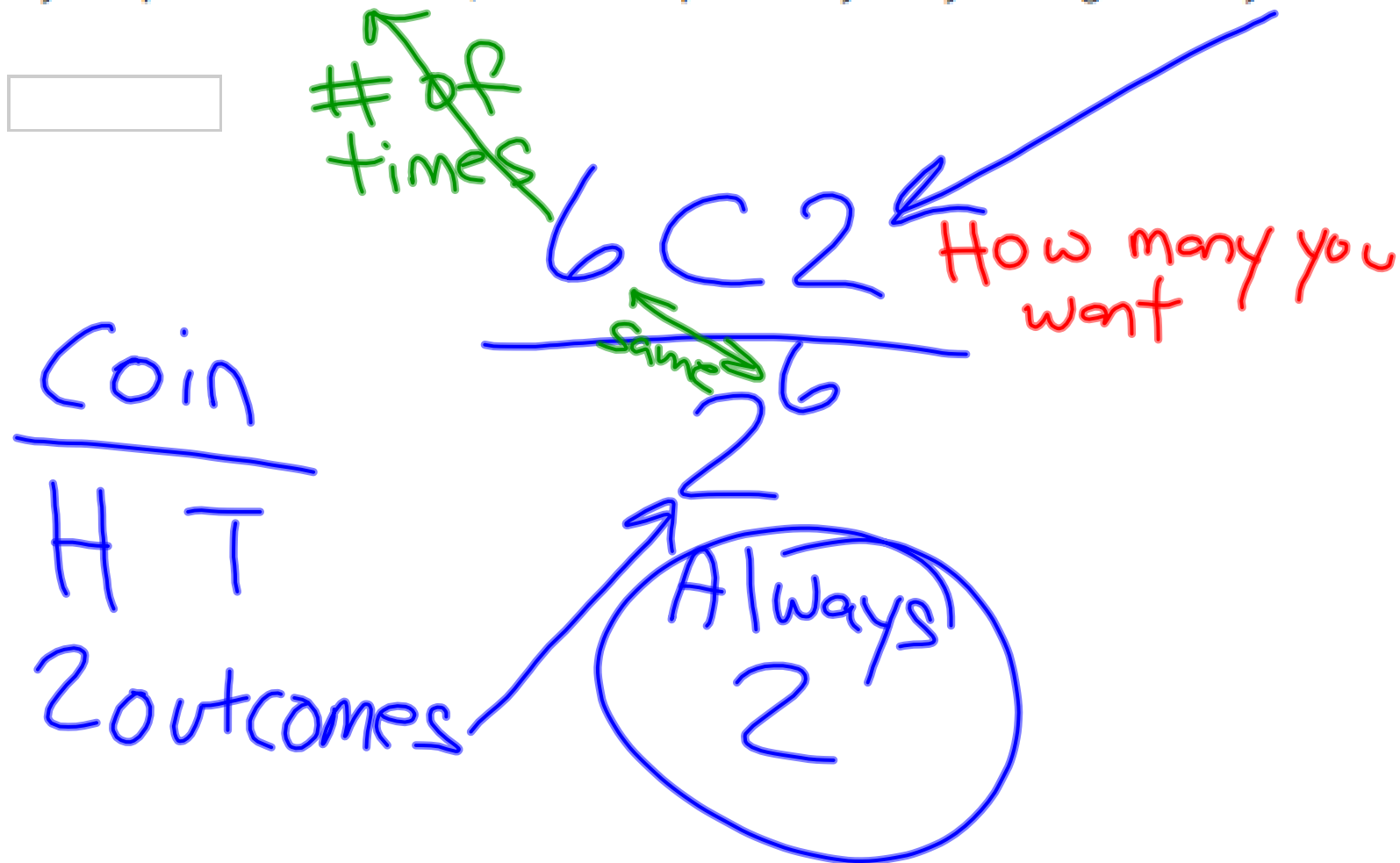
If the teacher picks a group of 3 at random, what is the probability that everyone in the group is a girl?

$$\frac{2}{7}$$

|              |       |
|--------------|-------|
| want girls 5 | $C_3$ |
| everyone 7   | $C_3$ |

same

If you flip a fair coin 6 times, what is the probability that you will get exactly 2 tails?



If you flip a fair coin 4 times, what is the probability that you will get exactly 3 tails?

The handwritten solution shows the calculation of the probability. An arrow points from the number '4' in the question to the '4' in the combination formula  ${}^4C_3$ . Another arrow points from the number '3' in the question to the '3' in the combination formula. The formula is divided by  $2^4$ , and the result is  $\frac{1}{4}$ .

$$\frac{{}^4C_3}{2^4} = \frac{1}{4}$$