

**Topic:** Probability

**Curriculum Competencies:**

- develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Model mathematics in contextualized experiences
- Use mathematical vocabulary and language to contribute to mathematical discussions

**Grade level:** K+

**Resource:** n/a

**Description:** 21 is a game that can be played with 2 or more players, where each player adds up their total cards to get as close to 21 points as possible without going over. There is no betting! The players will take turns being the dealer. To calculate the points each number card is the amount of their face value, while jacks, queens, and kings are worth 10 points each. When an ace is drawn, the ace card is worth either 1 or 11 points and the player who draws the ace can decide the value of the card. To begin the game, the dealer will give each player 2 cards face up, and the dealer will have one card face up and one card face down.

The dealer will go to each player one at a time and ask if the player would like 1 more card or to stay with what they have. Players can have as many cards as they like as long as the total points stays below 21. The dealer plays the game after all of the players have finished their turns. If the dealer gets the highest number of points (under 21) then the dealer will win, and if the dealer goes over 21 then all of the other players win. Probability is incorporated where students will have to decide if they wish to be dealt one more card with the risk of going over.

For example, if a student has 18 points then the probability is low in being dealt a 3 to get to 21 points if no other 3's have been drawn. But if a student only has 10 points, the chance of getting closer to 21 is more likely because any card they draw will get them closer to 21 total points. Because this game can be played with all ages, a calculator will be available to use if needed because some concepts of 'finding the difference' for the number that students need may be difficult. After each round the deck will be reshuffled to reset the odds of drawing certain numbers.