

# Save Twenty

**Materials:** Five dice per game; scratch paper and pencil

**Topics:** Addition, estimation, probability

**Common Core:** 1.OA.5, 1.OA.6, 2.OA.2

A quick, fun game for arithmetic practice with numbers up to 20.

## Why We Love Save Twenty

Save Twenty is quick and fun, with an element of risk that makes each turn exciting. Lots of estimation and addition practice are built into every game. It is perfect for helping students develop their number sense for numbers under 20. Deeper probability questions lurk in the background.

## The Launch

Choose a volunteer and demonstrate the game where everyone can see it. Once you have played through a few rounds with the volunteer, have students play the game in pairs or groups or three.

### Rules

Play is best with 2 or 3 players. The goal of the game is to roll as close to (or equal) to 20, without going over. You'll have four rounds per turn.

For the first round, roll all five dice. You may save as many as you like, from zero to all. Any dice that are not saved are then re-rolled.

For your second and third round, roll the dice you haven't saved. You may save as many of these as you like and then re-roll the rest on your next round.

For the fourth and final round, roll any remaining unsaved dice.

Now score your points. If your five dice form a sum greater than 20, you score 0. If the dice sum to 20 or less, that number is your score for the turn.

Play for 9 turns. The winner is whoever has the greatest score at the end of the game.

### Example Game

On my turn, I roll 2, 2, 3, 5, 6 in round 1. I save 3 and 5, and reroll the other dice.

In round 2, I reroll the three unsaved dice, and get 1, 1, 6. I don't save any of these dice.

On round 3, I reroll the three unsaved dice, and get 2, 5 and 6. I save 2 and 5.

On round 4, I reroll the only unsaved die and roll a 1.

My score for this turn is  $3 + 5 + 2 + 5 + 1 = 16$ . Because I didn't go over 20, my score for this turn is 16.

When my turn is over, I pass along my dice, and the next player goes.

## Prompts and Questions

- Is there a “best” strategy for Save Twenty? Are any strategies better or worse than each other?
- If you roll 18 on your first turn, should you take the 18 points, or keep trying to do better?
- If 20 is the best number to get to by round 4 using 5 dice, what’s the best number to try to get to by round 3 using 4 dice?

## The Wrap

Discuss student strategies and observations about Save Twenty. What’s the best way to get to twenty exactly? Should you keep fours and fives, or just sixes? Should you re-roll a die if you are at 18? At 17?

## Tips for the Classroom

1. Save Twenty is straightforward to use in the classroom. Once students know how to play, you can make it available for them as an option during free time/choice time.
2. Foam dice are a good option to prevent noisy dice rolls.
3. Make a class rule that if the dice roll off the table, it’s a re-roll. If dice are flying too far, you can also make a class rule that if the dice roll off the table it counts as a lost turn.
4. If adding up multiple two-digit numbers to calculate the final score is too hard for your students, they can try one of the following easier methods:
  - a. Add each new turn score to a running total (this still might be pretty challenging).
  - b. Play fewer turns before ending the game, and instead play multiple games.
  - c. Score 1 point for each won round rather than the final sum of the dice. The winner of 9 turns is the one with the most points.
5. For a more challenging game, use 10 or 12 sided dice, and play Save Thirty.