

Math Games with Dice



Here are some fun math games your children can play using just dice. Players of all ages will enjoy these games.

1) Make 10

MAKE 10

Players: 2

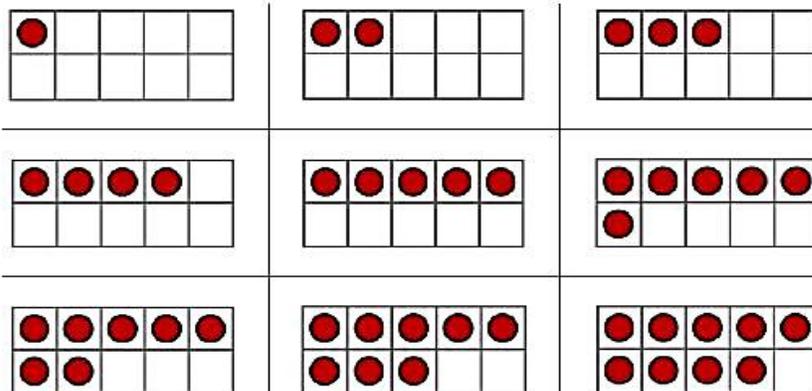
Materials: 1 or 2 dice, scratch paper (for keeping score)

Object: Make a 10 from the number rolled

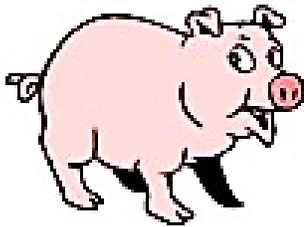
One Die Version: One die is rolled. Players try to be the first player to shout what number needs to be added to the number on the die to make a ten. The number needed to make ten becomes the player's score for that round. For example, if a 3 is rolled, players would shout 7, because 3 and 7 make 10. The first player to answer correctly earns 7 points.

Two Die Version: Two dice are rolled. Players must now add or subtract to make ten. For example, if two 6s are rolled, players would shout 2, because $6 + 6 = 12$ and $12 - 2 = 10$.

Players can use the ten-frames below for additional support.



2) Pig



PIG

Players: 2

Materials: 1 or 2 dice, 120 chart (optional)

Object: Be the first player to reach 100

One Die Version: On a turn, a player can roll repeatedly until one of two things happens (1) the player rolls a 1 or (2) the player chooses to hold (stop rolling). Each number rolled is added to the player's total. If a 1 is rolled, all points for that turn are lost!

Scoring examples:

1. Suzy rolls a 4 and decides to continue. She then rolls 5 more times (3, 4, 2, 6, 1). Because she rolled a 1, her turn ends and she receives no points for the numbers rolled.
2. Marcus rolls a 6 and decides to continue. He rolls 3 more times (4, 3, 5) and decides to hold. His score for the round is 18 ($6 + 4 + 3 + 5 = 18$).

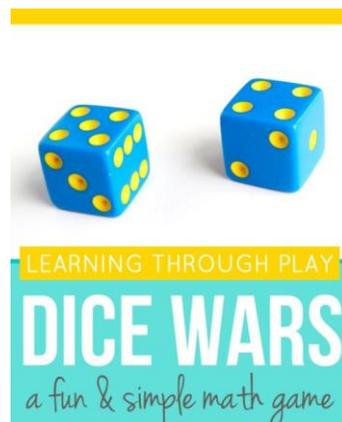
Two Dice Version: Two dice are rolled. If a single 1 is rolled on either dice, the turn ends and all points are lost. If two 1s are rolled on a single turn, the player scores 25 points. Doubles, for example a 2 and a 2, are worth double points ($4 \times 2 = 8$).

❖ This game idea comes from *Math Coach's Corner*
<https://www.mathcoachscorner.com/>

3) Dice Wars

Materials Needed:

- 2-4 dice
- 10 small counters (can use things like pebbles, pennies, buttons, Goldfish crackers, etc.)



Directions:

- Each player starts with 2 dice and 5 rocks (or other counters).
- The objective of the game is to capture all of the other player's rocks.
- On the count of three, both players roll their dice. Each player adds up the sum of his/her two dice, and whoever has a higher number gets to "steal" a rock from the other player.
- Continue playing until one player has ALL 10 rocks. In our experience, it took 10-15 minutes for each game. If that's too long for your child's attention span, you can set a timer and declare the winner to be the person with the most rocks when it goes off.

Variations:

- We decided that getting doubles trumps any other number, and you get to steal TWO rocks from the other player (This rule helps the game go faster, I think).
- For younger kids, you can just use one die each and focus on number identification instead of addition. For older kids, try using three!
- You could practice subtraction instead of addition skills. Subtract the smaller number from the bigger number, and the player with the larger difference gets to steal a rock from the other player.

❖ This game idea comes from *The Many Little Joys*
<http://www.themanylittlejoys.com/>



4) Passage

What you need:

- 2 dice
- 2 or more players

Objective: to be the first player to reach 11 points.

Instructions:

To set up the game each player rolls a die. The highest scoring roll will be the player who begins the game. The player who rolled the lowest number will now roll a second time and the number on the die becomes the “point number.”

Starting with the first player, players take turns rolling two dice. If he/she rolls the point number, he/she gets one point. If he/she rolls doubles of the point number, he /she gets two points. Each player gets only one roll per turn.

The first player to get 11 points wins.

Watch Video - <https://www.youtube.com/watch?v=xGnZENoV1-I>

5) Run for It

What you need:

- 6 dice
- 2 or more players

Objective: to be the first to reach 100

Instructions:

Alternating turns, each player rolls 6 dice. Looking at the dice, the player attempts to organize them into runs. A run is a sequence of numbers, such as 1-2-3-4-5-6. For each number used in a run, the player scores 5 points. Dice may only be used once when creating a run. Runs must begin with the number 1.

For example, a roll of 1-2-4-5-6-6 scores 10 points for the run 1-2.

For example, a roll of 1-2-1-2-3-4 scores 10 points for the run 1-2, and 20 points for the run 1-2-3-4 for a total of 30 points.

If there is no run, no score is recorded. For example, a roll of 1-3-4-4-5-6 scores zero points.

Play continues until one player has reached 100 points.

Watch video: <https://www.youtube.com/watch?v=W678XKYllqc>

❖ **These game ideas come from *What Do we Do All Day***
<https://www.whatdowedoallday.com/>

6) Knock-out

What you'll need:

- A small dry erase board (or paper and pencil)
- A dry erase marker
- 2 dice



How to Play the Game:

Write the numbers 2 -12 on both sides of the dry erase board. Set the board in between the 2 players.

Take turns rolling the dice. Add the dice together and erase the sum from your side of the board.

The first one to erase all of their numbers wins!



Knockout Variation for More Advanced Kids:

Does your child need more of a challenge? Try playing knockout with 12 sided dice! Just write the numbers 2-24 on the board instead.

- ❖ **This game idea come from *Everyday Chaos and Calm***
<https://everydaychaosandcalm.com/>

7) Knock-out (second version)

What you need:

- 2 dice
- 2 or more players

Objective: to be the first player to reach 100; or have the highest score at the end of a predetermined number of rounds. (*We prefer to play for 10 rounds.*)

Instructions:

To set up the game decide if you will play to 100 or for a number of rounds. Chose 6, 7, or 8 as the “knock-out number.”

The knock-out number can be the same for all players, or each player can have a different knock out number. We find the best way to play is with 7 as everyone’s knock-out number. A round is complete when all players have had one turn.

Taking turns, players roll both dice, if they do not roll the knock-out number the total score is recorded for that turn and the pass the dice to the player on their left.

For example, if the roll is 2-3, the player earns 5 points.

If player rolls the knock-out number, they receive no score for that round. But not only that, the player's accumulated score is "knocked-out" and the player must start again on their next turn.

Only one roll per turn. Play until one player has achieved the game objective.

Watch a video: <https://www.youtube.com/watch?v=bCqOWKBK4to>

- ❖ **These game ideas come from What Do we Do All Day**
<https://www.whatdowedoallday.com/>

8) Skunk (like the game PIG)

Game of chance and probability.

What you need:

- 2 dice
- 2 or more players
- Paper with Skunk written at the top and columns (one per player)



Directions:

Each letter in the word "skunk" represents a different round of the game; play begins with the "S" column and continues through the "K" column.

The object of "skunk" is to accumulate the greatest possible point total over the five rounds. The rules for play are the same for each of the five rounds. Each player takes turn rolling the dice in each round. When the player's round is complete, he or she passes the dice to the next player.

To accumulate points in a given round, a pair of dice is rolled. A player gets the total of the dice and records it in his or her column, unless a "one" comes up. If a "one" comes up, the play is over for that round and all the player's points in that column are wiped out. If "double ones" come up, all points accumulated in prior columns are wiped out as well.

If a "one" doesn't occur, the player may choose either to try for more points on the next roll or to stop and keep what he or she has accumulated. Note: If a "one" or "double ones" occur on the very first roll of a round, then that round is over and the player must take the consequences.

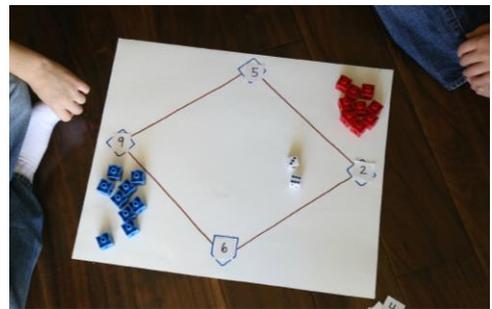
Watch a Video: <https://www.youtube.com/watch?v=-SWReEQOVr4>

❖ These game ideas come from *Mrs. B's Best*
<http://www.mrsbsbest.com/>

9) Math Baseball

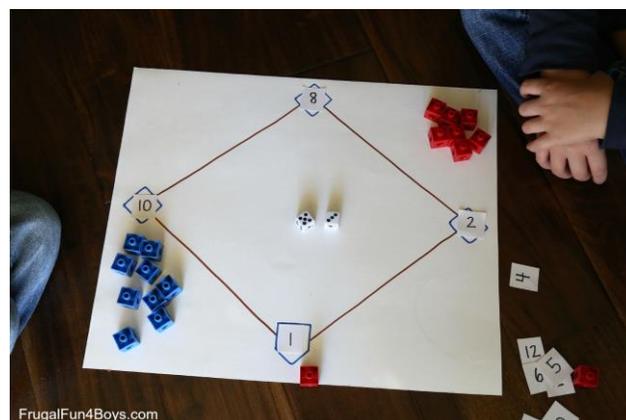
Materials Needed:

- Game Board – Draw a simple baseball diamond on paper.
- Two Dice
- Number Cards – make a set of small cards with the numbers 0-12
- Counters to use as baseball players, 9 for each team (can use anything you find around the house)



How to Play:

Label each base as well as home plate with your number cards. These numbers will change each inning.



The game is played by rolling two dice. The player can either add the two numbers or subtract one number from the other. For example, if a player rolls a 2 and a 5, he can count that either as $2+5=7$ or $5-2=3$. If the player can create a math sentence from the dice that equals one of the numbers on the baseball field, his/her “batter” (math counter) runs to that base. If the numbers rolled cannot be used to create a math sentence that matches one of the answers on the board, then that is an “out.” If you can make a math sentence that equals the number on home plate, you get a home run!

Sometimes, a player will roll a combination which yields two possible answers that are both on the board. They must choose which is the better move.

Each player continues their turn until they have rolled three “outs.”

If there are counters on the bases and the player rolls another hit, then all of the counters will run that number of bases. So, for example, if there are runners on 1st and 3rd and the player rolls a 1st base number, the runner on 1st will go to 2nd and the runner on 3rd will run home. If the child had rolled a second base number with counters on the bases, they would have all moved two bases, and so on. This sounds complicated, but kids pick it up quickly.

How to keep score:

Make a chart with a column for each player and then within those, a column for outs and runs scored in each inning.

Inning	Owen		Gresham	
	outs	Runs	outs	Runs
1				
2		###		
3				
4				
5				
6		###		

❖ These game ideas come from *Frugal Fun 4 Boys and Girls*
<https://frugalfun4boys.com/>

10) Shut the Box Game

If you do not own the game, Shut the Box, no problem. Make your own game using an actual box.

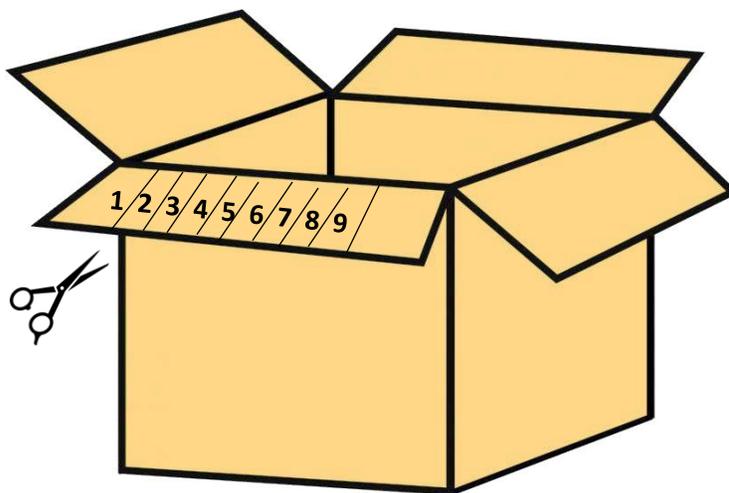


Materials Needed:

- Game Board – Box with four flaps
- Pen
- Two Dice

How to make the game:

Take each flap of a box and write number 1-9 (or can try 1-10, 1-12). Then cut slits in between each number. Repeat on all four sides.



How to play:

Shut the Box can be played by any number of players although it is most enjoyable with two, three or four.

A round of the game consists of each player taking one turn. A player takes a turn by repeatedly throwing the dice until the player cannot continue. Each throw of the dice is taken as follows:

The first player rolls both dice and counts the number of 'pips' (dots) on the dice. Add the numbers on the dice together. Using this sum, the player can knock down or 'close' any combination of numbered levers that add up to the sum.

For example, if a 2 and a 5 are rolled, the player may choose to 'close': 7, 1 & 6, 2 & 5, 3 & 4, 1 & 2 & 4

*Note: If the levers numbered 7-9 (or 7-12 depending on the version of the game board) are still 'open', the player must roll both dices, if these levers are 'closed', the player may choose to roll one die or both dice.

The first player continues to roll the di(c)e until they can no longer 'close' an appropriate combination of numbers. Add up the numbers on the levers that remain 'open', and this is the first player's score.

For example, if the 1, 2, and 9 levers are still 'open', the player's score is 12.

It is now the second player's turn. All of the levers are 'opened' again, and the second player repeats the process. When all players have had a turn, the player with the lowest score wins.

If one player successfully 'closes' all of the levers, they are said to have 'shut the box', the game ends immediately and this player wins the game automatically.

If playing with poker chips or fake money, place bets in the pot before the game begins. The winning player is given the pot at the end of each round. Decide on how many rounds will be played. At the end, whoever has the most money wins.

11) Ten Thousand

Material:

- 6 Dice
- Paper for Scoring
- Dice Tray (optional) can make from a cereal box or box lid (see pic)



Play:

Each player takes turns at rolling the dice and must set aside at least one scoring die (1s, 5s, triples, 3 pairs, or a run of 6. See score values below). Their turn continues, rolling the remaining dice, as long as they have thrown and set aside a scoring number or combination. Players announce their progressive score for their turn after each roll.

A player's turn ends when they either decide to stop and score their accumulated points or until they have a scoreless throw and score nothing for that turn. Should all six dice be set aside as scoring then the player may roll them all again and continue their tally.

Scoring combinations only count when made with a single throw. For example, a player who rolls and puts aside a 1 and then throws two 1s with the next throw may only score 300 not a 1,000.

The first player to score a total of 10,000 or above, wins the game, provided any subsequent players, with a turn left, don't exceed their score.

Score Values

1 = 100 points

5 = 50 points

1, 1, 1 = 1,000 points

#, #, # = # x 100 e.g. 2, 2, 2 = 200 points: 6, 6, 6 = 600 points

1, 2, 3, 4, 5, 6 = 3,000 points

3 pairs = 1,500 points (including four-of-a-kind and a pair)

An example turn might go something like this: A player rolls the six dice and they come up 1, 1, 2, 4, 5, 6. He could set aside the two 1s and the 5 scoring 250 points, but instead sets aside the 1s, scoring 200 and rolls the remaining four dice. They come up 1, 6, 6, 6 and the player decides to set aside all four dice and his score is increased by 700 points (1 = 100 + 6, 6, 6 = 600) giving a total of 900 so far. All six dice are scoring so the player decides to continue his turn by rolling them all again. This time he is unlucky and rolls 2, 3, 3, 4, 6, 6. A scoreless throw which means he scores nothing for this turn and the dice pass to the next player.

Variations:

A player may not begin to score until he has first scored at least 500 points in a turn.

A player may take up the scoreless dice of the previous player who has had a scoreless throw and forfeited their points. Should he then throw a scoring number or combination he takes the previous player's forfeited score, in their last turn, as their own. Worth risking if they have accumulated a high score.

A player who throws a scoreless first roll, three times in successive turns, loses 1000 points.

If five dice are counted as scoring, the remaining die may be thrown twice in an attempt to roll a 1 or 5. If successful, the player is allowed to continue rolling with all six dice and receives a bonus of 500 points. The bonus increases by 500 points for every time the last die is rolled and scores in a single turn.

Four or more 2s cancels a players entire score.

Six-of-a-kind made with a single throw wins the game outright.

Sometimes a target total of 5,000 is set to make for a shorter game.

❖ This game idea comes from *Dice Play*
<http://www.dice-play.com/>

13) Game of Cat and Mouse

Bonus Game! Not a lot of math in this one, just a fun and easy game you can make at home.

Material:

- 2 Dice
- Tape
- Pot lid
- Tissue and string (2 feet for each player)
- Tokens – Pennies or anything small (5 for each player)



Step #1 – Get a tissue for each player and fold and roll it up.

Step #2 – Get a 2 foot piece of string and tie it around the tissue
This tissue is now called “the mouse”.



Step #3 – Tape a circle on a carpeted floor.
With colored tape, create a circle on carpeted floor. It needs to be bigger than a large kitchen pan lid.

Step #4 – Find 5 tokens for each player
Each player needs 5 pieces of something. You can use pennies, legos, pretend money, etc.

Step #5 – Get your dice and 1 large pot lid.
The lid is now called “the cat”



Instructions on how to play:

Have each player place their "MOUSE" inside of the circle on the floor, holding the opposite end outside of the circle. Start with one person holding the "CAT" in one hand and 2 dice in the other. The person with the "CAT" and 2 dice begins rolling.

If they get doubles the "Cat" tries to catch as many mice as they can by slamming down the lid into the circle (couldn't think of another word besides slamming, it's a controlled slam). As soon as doubles are rolled, everyone must pull out their mice as fast as they can to prevent being caught under the lid. This is why it is also important that your lid is smaller than your circle. Would not recommend using your large pot lids.



If your mouse gets caught under the lid, you must "pay" the cat with one of your tokens.

After doubles are rolled, you pass the 2 dice and lid to the person to your left. Repeat until doubles are rolled. Try and catch some mice as fast as you can. If you catch 3 mice, you get 3 tokens; 2 mice, you get 2 tokens Etc.

If you run out of tokens, you are out of the game.

The "Cat" can fake attacking the mice. If the mice pull out of the circle, they owe the "Cat" a token.

Roll the dice so everyone can see them.

Make sure all hands and fingers stay clear of the circle while the “Cat” is rolling.

If the “Cat” touches the floor on attack when doubles were not rolled, the “Cat” owes a token to all of the mice.

The “Cat” cannot hover close to the circle. They need to remain outside the circle airspace.

❖ This game idea comes from *Uplifting Mayhem*
<https://www.upliftingmayhem.com/>