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**OBJECT:**Each player will throw their airplane at the monitor screen three times. Players will record the terms where the airplanes hit, and then arrange these terms into expressions to earn the highest points possible. Each operation +, -, \*, /, ^2 and one set of parentheses MUST BE USED AT LEAST ONCE.

You and your partner together will try to earn 1,000,000 points by the end of round eight.



**WHAT YOU WILL NEED:**

1. A paper airplane for each player (they should make their own, that is part of the fun of this version)
2. one[die cube](http://www.themathlab.com/games/bachee%20ball/algbllel.htm#die)
3. [scorecard](http://www.themathlab.com/games/bachee%20ball/algbllscore.htm) for each player (you can print this out or just use paper to keep track of your work)
4. kitchen timer
5. scientific calculator to check (use the one in the "accessories" menu if you need to)
6. [Electronic Game Board](http://www.themathlab.com/games/bachee%20ball/gamebd.htm)
(we have three versions for variety)



**HOW TO PLAY:** You and your partner sit on chairs about five feet from the monitor screen

 

Make sure you each have a paper airplane. Get your [scorecard](http://www.themathlab.com/games/bachee%20ball/algbllscore.htm) or paper ready. 

First, you will [roll the die](http://www.themathlab.com/games/bachee%20ball/algbllel.htm#die) to determine the sign of the variable. If you roll an **even** number the sign is POSITIVE. If you roll an **odd** number the sign is NEGATIVE. Record this on the [scorecard](http://www.themathlab.com/games/bachee%20ball/algbllscore.htm) or on the paper.

Second, you will [roll the die](http://www.themathlab.com/games/bachee%20ball/algbllel.htm#die) again to get the value of the variable. Your value will be the number which comes up on the die. Record this on the [scorecard](http://www.themathlab.com/games/bachee%20ball/algbllscore.htm) or paper.

Third, players will get the terms for the expression.

Click [HERE to get an electronic gameboard](http://www.themathlab.com/games/bachee%20ball/gamebd.htm). Use your scroll bar to center it between the top and bottom of your screen.

The first player throws her airplane at the screen three times. She should aim for the terms that will give her the highest value when evaluated with the value of the variable.
(Don't forget to take into consideration what happens if your variable is NEGATIVE.)
Both players write these terms down on their scorecards in the terms boxes. Then the second player throws his airplane three times and both players record these results.

**NOTE**: If a plane hits the edge of the monitor or does not hit a cell on the game board, it must be thrown again until a term is selected.

At this point, each player is on their own. They have 3 minutes to arrange the terms and sets of parentheses into an expression that they believe will generate the largest value once the variable is inserted. Each symbol +, -, \*, /, ( ), ^2 must be used at least once.

Each player must show the expression on the paper, show the substitution of the variable into their expression, and then show all the work to evaluate it.

The final value of the expression will then be placed in the "Score this round:" box.

Players need to CHECK EACH OTHER'S WORK, for if one of them is wrong, BOTH must record zero points for the round.


As each round progresses, the "Total Score" column should be updated with the points earned by the player.

At the end of eight rounds, players **combine** their total scores. If they have 1,000,000 points or more, they win the game.

NOTE: If more than two people want to play, set up several teams. The team with the most points at the end of eight rounds, wins.
\*Teams can always challenge another team's work by checking any expression with a scientific calculator. If they are wrong the points for that round must be lowered to ZERO.



Click [HERE](http://www.themathlab.com/games/bachee%20ball/algbllel.htm#die) to roll the dice.

Click [HERE](http://www.themathlab.com/games/bachee%20ball/gamebd.htm) to get a game board.



**VARIATIONS ON THE GAME:**

**SELF PLAY TIMED:**

Set a timer for 10 minutes. See if you can make 10,000 points before it rings.

**SELF PLAY UNTIMED:**

Play four untimed rounds to get a baseline total score for yourself.
Challenge yourself to beat your best total score with the next four rounds.


**COMPETITION VERSION:**

Two players play. They have 3 minutes each round to create and evaluate the largest expression. The player with the largest round score wins the round. Play as many rounds like this as you both agree to at the beginning.