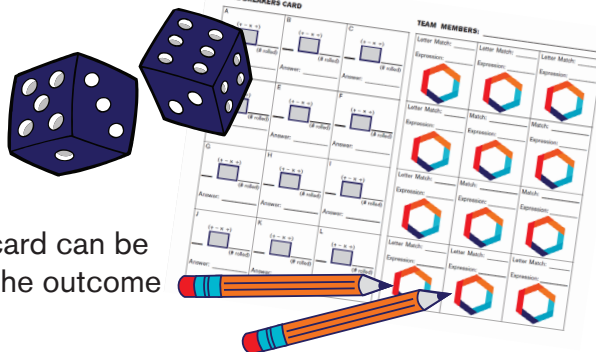


DICE BREAKERS

Everything You Need to Play

MATERIALS

- One standard die
- Dice Breakers Card for each pair of students*
- Writing utensil for each pair of students
- Stopwatch (optional)





*2 Dice Breakers Cards are included, and each card can be used multiple times, since rolling the die changes the outcome of each game.

RULES

Practically all of us have participated in ice breakers before. They are a great way to get to know people and have fun at the same time, so what better way to kick off your club? Dice Breakers is part game, part ice breaker, and your students will have fun playing this game again and again while practicing mental math, computation and algebra.

- Have students pair up and spread apart, so that no pair can see another's card. Pass out 1 Dice Breakers Card, face down, to each pair. Tell the students not to look at the card until instructed to do so. Every pair should start with the same blank Dice Breakers Card.
- The left side of the card has 12 expressions, each with a whole number missing and an operation missing; the right side has 12 whole numbers (surrounded by a hexagon), each of which represents a potential answer to one of the expressions on the left.
- When the Club Leader tells the students to begin, the Club Leader will roll the 6-sided die 12 times—once for each missing number in an expression square and will say the number they rolled for each expression. Note, the squares are labeled with letters A-L, so that it is clear which roll goes with each expression. Club Leaders should say, for example “Expression A is (# rolled); expression B is (# rolled)...” and so on as they roll the die, until they have rolled once for every expression square.
- As the Club Leader rolls and announces the missing number (# rolled) for each expression square, one of the students in each pair should fill in the missing number (# rolled) for each expression, starting with square A and continuing until every missing number is filled in for their 12 expressions.
- Immediately after all expressions have the missing number filled in from the rolls, the students in each pair will have 2 minutes to try to match as many expressions with answers as possible.

Students “match” expressions to answers by selecting the operation (addition, subtraction, multiplication or division) that could result in an answer on the right side of their card. For example, consider having the following expressions and answers to work with:

<p>J</p> <p>(+ - × ÷)</p> <p>4 3</p> <p style="text-align: right;">(# rolled)</p> <p>Answer: _____</p>	<p>K</p> <p>(+ - × ÷)</p> <p>2 6</p> <p style="text-align: right;">(# rolled)</p> <p>Answer: _____</p>	<p>Letter Match: _____</p> <p>Expression: _____</p> <div style="text-align: center;">  </div>	<p>Letter Match: _____</p> <p>Expression: _____</p> <div style="text-align: center;">  </div>
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Then the students would have the following options for the expression with **4** and **3**:



- $4 + 3 = 7$
- $4 - 3 = 1$
- $4 \times 3 = 12$
- $4 \div 3 = 1\frac{1}{3}$

And they would have the following options for the expression with **6** and **2**:

- $2 + 6 = 8$
- $2 - 6 = -4$
- $2 \times 6 = 12$
- $2 \div 6 = \frac{1}{3}$

In this case, although both 2×6 and 4×3 would result in a match for 12, the best strategy would be to use $2 \times 6 = 12$, so that they could use $4 + 3 = 7$ and get a match with the answer 7.

Students must fill in their card as they go, so following the example above, the students would write in the following information on their card:

<p>J</p> <p>(+ - × ÷)</p> <p>4 + 3</p> <p style="text-align: right;">(# rolled)</p> <p>Answer: 7</p>	<p>K</p> <p>(+ - × ÷)</p> <p>2 × 6</p> <p style="text-align: right;">(# rolled)</p> <p>Answer: 12</p>	<p>Letter Match: _____</p> <p>Expression: 2×6</p> <div style="text-align: center;">  </div>	<p>Letter Match: _____</p> <p>Expression: $4 + 3$</p> <div style="text-align: center;">  </div>
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It is important to note, *students can use each expression only once and each answer only once and cannot switch the order of the numbers around.* This means that they must figure out the best strategy to get the most matches. It also means that they will likely not be able to match every expression with an answer.

After two minutes, the Club Leader will yell “Time!” and all students must put down their pencils and stop working.

Each pair then will share with the rest of the club what they did and how many matches they were able to make in the 2 minutes. Students can discuss what alternative solutions other pairs had, and see if any other pairs were able to get more matches.

If your students catch on and get better at matching, you can reduce the amount of time they have to 1 minute or 30 seconds to make the game more fast-paced and challenging.

TEAM MEMBERS: _____

<p>A</p> <p>$(+ - x \div)$</p> <p>5</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>B</p> <p>$(+ - x \div)$</p> <p>6</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>C</p> <p>$(+ - x \div)$</p> <p>3</p> <p>(# rolled)</p> <p>Answer: _____</p>
<p>D</p> <p>$(+ - x \div)$</p> <p>7</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>E</p> <p>$(+ - x \div)$</p> <p>2</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>F</p> <p>$(+ - x \div)$</p> <p>18</p> <p>(# rolled)</p> <p>Answer: _____</p>
<p>G</p> <p>$(+ - x \div)$</p> <p>16</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>H</p> <p>$(+ - x \div)$</p> <p>8</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>I</p> <p>$(+ - x \div)$</p> <p>3</p> <p>(# rolled)</p> <p>Answer: _____</p>
<p>J</p> <p>$(+ - x \div)$</p> <p>4</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>K</p> <p>$(+ - x \div)$</p> <p>24</p> <p>(# rolled)</p> <p>Answer: _____</p>	<p>L</p> <p>$(+ - x \div)$</p> <p>9</p> <p>(# rolled)</p> <p>Answer: _____</p>

<p>Letter Match: _____</p> <p>Expression: _____</p> <p>24</p>	<p>Letter Match: _____</p> <p>Expression: _____</p> <p>2</p>	<p>Letter Match: _____</p> <p>Expression: _____</p> <p>4</p>
<p>Letter Match: _____</p> <p>Expression: _____</p> <p>10</p>	<p>Match: _____</p> <p>Expression: _____</p> <p>12</p>	<p>Match: _____</p> <p>Expression: _____</p> <p>27</p>
<p>Letter Match: _____</p> <p>Expression: _____</p> <p>13</p>	<p>Match: _____</p> <p>Expression: _____</p> <p>20</p>	<p>Match: _____</p> <p>Expression: _____</p> <p>1</p>
<p>Letter Match: _____</p> <p>Expression: _____</p> <p>15</p>	<p>Letter Match: _____</p> <p>Expression: _____</p> <p>9</p>	<p>Letter Match: _____</p> <p>Expression: _____</p> <p>11</p>

TEAM MEMBERS: _____

<p>A</p> <p>$(+ - x +)$</p> <p>5</p> <p>Answer: _____</p>	<p>B</p> <p>$(+ - x +)$</p> <p>6</p> <p>Answer: _____</p>	<p>C</p> <p>$(+ - x +)$</p> <p>3</p> <p>Answer: _____</p>
<p>D</p> <p>$(+ - x +)$</p> <p>7</p> <p>Answer: _____</p>	<p>E</p> <p>$(+ - x +)$</p> <p>2</p> <p>Answer: _____</p>	<p>F</p> <p>$(+ - x +)$</p> <p>18</p> <p>Answer: _____</p>
<p>G</p> <p>$(+ - x +)$</p> <p>16</p> <p>Answer: _____</p>	<p>H</p> <p>$(+ - x +)$</p> <p>8</p> <p>Answer: _____</p>	<p>I</p> <p>$(+ - x +)$</p> <p>3</p> <p>Answer: _____</p>
<p>J</p> <p>$(+ - x +)$</p> <p>4</p> <p>Answer: _____</p>	<p>K</p> <p>$(+ - x +)$</p> <p>24</p> <p>Answer: _____</p>	<p>L</p> <p>$(+ - x +)$</p> <p>9</p> <p>Answer: _____</p>

<p>Letter Match: _____</p> <p>Expression: _____</p>	<p>Letter Match: _____</p> <p>Expression: _____</p>	<p>Letter Match: _____</p> <p>Expression: _____</p>
<p>Letter Match: _____</p> <p>Expression: _____</p>	<p>Match: _____</p> <p>Expression: _____</p>	<p>Match: _____</p> <p>Expression: _____</p>
<p>Letter Match: _____</p> <p>Expression: _____</p>	<p>Match: _____</p> <p>Expression: _____</p>	<p>Match: _____</p> <p>Expression: _____</p>
<p>Letter Match: _____</p> <p>Expression: _____</p>	<p>Letter Match: _____</p> <p>Expression: _____</p>	<p>Letter Match: _____</p> <p>Expression: _____</p>