



Prime & Composite

Lines



The Positive Engagement Project
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Prime and Composite Lines is a great way to reinforce the concept of prime and composite numbers in a fun and engaging way for students of all ages. Each turn is comprised of multiple steps that are simple, yet allow multiple opportunities to practice the concepts. As you will see, this game is easy to teach to students and will provide students with an engaging and fun platform in which to practice. It can be played as a whole group activity led by the teacher or a couple of students as well as with partners or partner teams. With that said, enjoy the game!

Materials: Game board, dice (preferable one 20 or more sided die), 2 sets of colored game board markers.

Game Objective: The game is won by making a straight line of 4 in a row. First person or team to do this wins the game.

Skill Objective: Allow students to practice the concepts of prime numbers and composite numbers in a fun, engaging, and meaningful fashion.

How to play:

1. Display the game board on an overhead projector (or give to each group playing the game).
2. Decide who will go first by rolling the dice (highest roll wins choice to go first or defer).
3. Player 1 rolls the dice and has to determine if the number they rolled is a prime number or a composite number and tell their opponent. If they identify the number correctly, they can then mark ANY ONE number on the game board that matches the type of number rolled (prime or composite). Player 1 IS NOT REQUIRED to mark the same exact number that was rolled. Player 1 can choose any prime number or composite number on the board. If the player incorrectly identifies the number on the dice (i.e.: says it's a prime number when it is actually a composite number) or fails to correctly mark the same type of number on the game board, they lose their turn, thus not placing a marker on the game board, and it is the next player's turn at this point.
4. It is now Player 2's turn. Player 2 repeats **Step 3**.
5. Players alternate turns until one player successfully completes a straight line of 4 in a row. The line can go in any direction but **MUST** be straight. The first player to complete a straight line of 4 in a row wins the game.

A couple additional "rules":

1. When a player rolls a prime number, that player must say "prime number" to identify the type of number to their opponent.
2. When a player rolls a composite number, that person must say "composite number" to identify the type of number to their opponent and give factors other than 1 times the number to get the product, thus proving their answer.
3. It is the responsibility of the opposing player to make sure the answer is correct. If the rolling player incorrectly identifies the rolled number or incorrectly places a marker on the board and the opposing player does not catch it before making their next roll, the play stands and the game continues. However, if the rolling player incorrectly identifies or incorrectly marks a number and the opposing player catches it before the next roll, the rolling player loses their turn and does not place a marker on the game board. It is important that **BOTH PLAYERS** pay attention at all times to avoid mistakes or bluffs.
4. Allowing students to "bluff" is up to the teacher. Students will quickly find out that bluffing can be very risky since they will lose their turn if they are "caught" bluffing.



1	9	7	21	15	11	14
35	51	3	25	17	18	2
49	13	8	5	12	4	10
12	35	16	7	32	19	24
17	41	99	27	13	9	42
54	19	21	11	34	52	17
9	31	14	25	2	8	33

Step 1: Roll the dice to determine who goes first (highest number goes first and players alternate turns throughout game).

Step 2: Roll the dice and determine if the number rolled is composite or prime.

Step 3: Choose ANY number on the board that matches the TYPE of number you rolled and put your marker on that number.

Step 4: Make a STRAIGHT line of four numbers to win the game.

