FIND YOUR HIGGS!

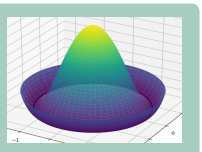
Goal of the Game
Collect a valid four-card Higgs boson decay combination to win instantly.
If no Higgs is found, the player with the most collected cards wins.

Setup
Number of players: 2–9.
Shuffle all 66 cards.
Place them face down in a rectangular grid (for example 6×11).

Gameplay
Players take turns clockwise.
1. Turn Two Cards
   On your turn, flip over two cards.
   You may keep them if they form a valid pair:
   - a lepton–antilepton pair (black & white cards), or
   - a meson made from two colored quark cards.
   If successful, keep the cards and continue your turn.

2. Try a Three-Card Combination
   If the first two cards are not a valid pair, but could become a valid triple, flip a third card.
   Valid three-card combinations:
   - baryon = three quarks with different colors
   - anti-baryon = three antiquarks with different anti-colors
   If valid, keep the cards and continue your turn.

The Higgs boson is a quantum excitation of the Higgs field. This field has a nonzero value even in empty space. Elementary particles that interact with it — such as quarks, charged leptons, and the W and Z bosons — acquire mass through this interaction.



The diagram shows the Higgs potential, often nicknamed the "Mexican hat." Its lowest-energy states lie in a ring-shaped valley rather than at the center. Choosing one of these states breaks the symmetry spontaneously. Small oscillations of the field around this chosen state appear as Higgs bosons, which were discovered at CERN's Large Hadron Collider in 2012.

3. Try to Find a Higgs
   If the first two cards are leptons that could belong to a Higgs decay, you may flip two additional cards.
   If all four cards form a valid Higgs boson decay, you immediately win the game.

Invalid Combination
If the revealed cards do not form a valid 2-, 3-, or 4-card combination:
turn all revealed cards face down again,
return them to their original positions,
and the next player takes their turn.

End of the Game
If no player finds a Higgs boson:
the game ends when all cards are collected,
the player with the most cards wins.

First published online: 10/05/2026
Last version: 10/05/2026
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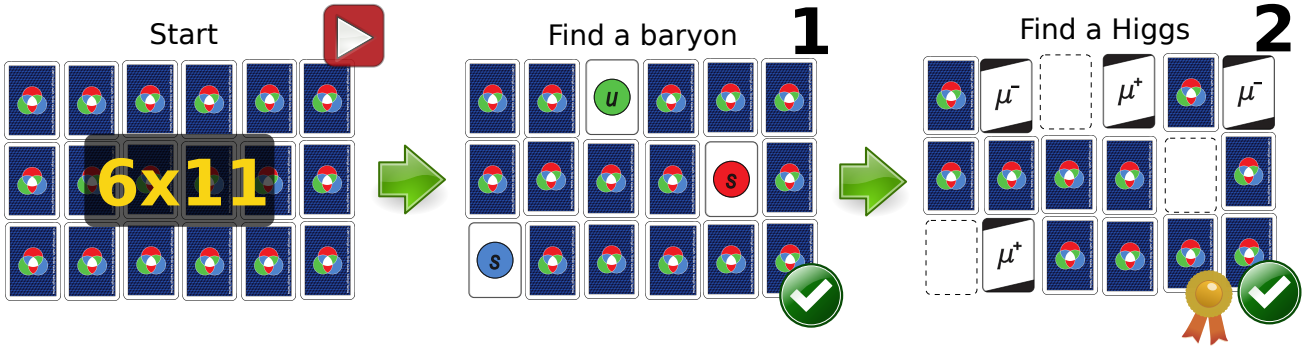

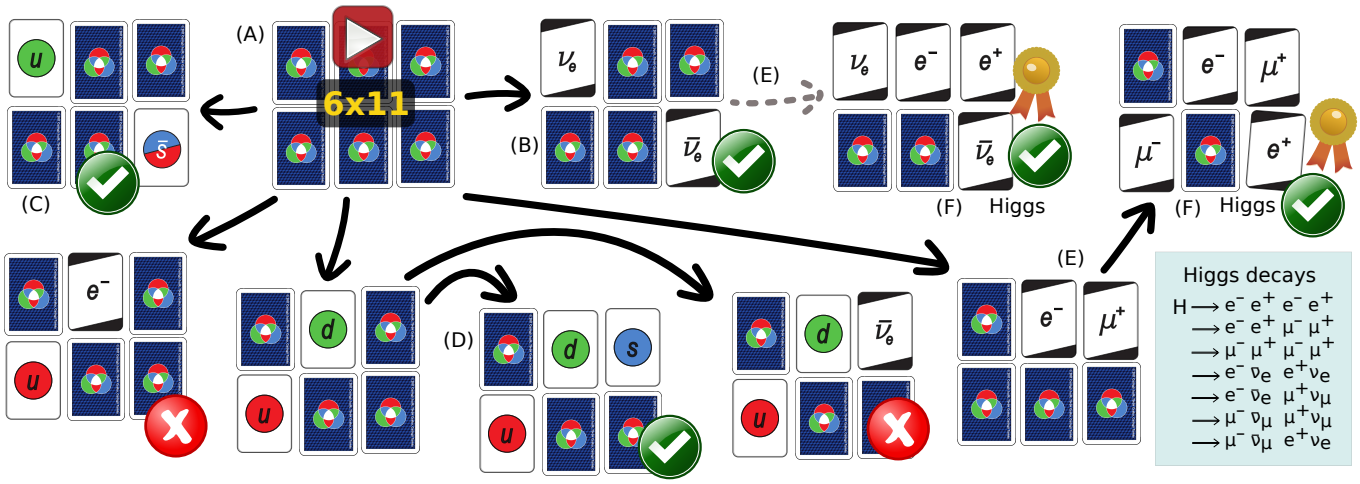

(A): Starting position of the game: all cards are placed face down in an ordered grid, for example a 6×11 table.
(B): A valid lepton–antilepton pair: two black and white cards forming an allowed lepton pair.
(C): A valid meson: two colored cards forming a quark–antiquark combination.
(D): A valid baryon or anti-baryon: three quarks with different colors form a baryon, while three antiquarks with different anti-colors form an anti-baryon.
(E): If the first two revealed cards are leptons that may belong to a Higgs decay, the player may reveal two additional cards.
(F): A valid Higgs boson decay: four leptons forming a Higgs decay combination. The player immediately wins the game.