

PENTAQUARK

Some of the biggest questions in the world of science may be answered by studying quarks, the smallest of particles. The problem with trying to study quarks is that you can't find just one quark; you need to find them in groups called *hadrons*, or some other exotic particles, like the *Pentaquark*.

In the game, you are trying to give science a little helping hand by collecting the 5 quarks that form this particle at the detector of a massive particle collider. Move cards you need to the detector, discard others so they may come back as anti-quarks, and try to minimize the number of quarks scattered and lost. If too many cards are removed from the game, the Pentaquark has slipped through undetected once again!

Contents:

- 15 quark cards in each of 5 flavors and 3 colors
- 3 Annihilation cards

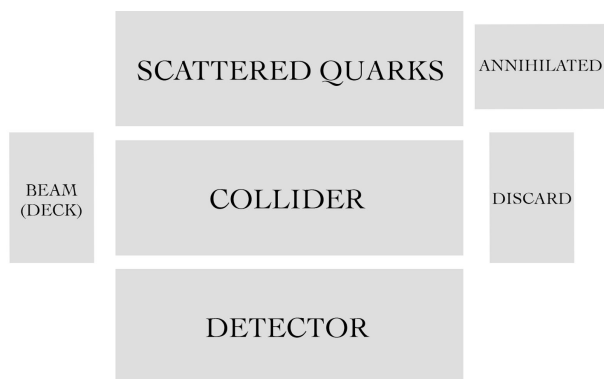
Goal: Detect a Pentaquark before too many quarks are annihilated.

Setup:

- Create the Beam deck (or simply, the Beam) by shuffling all 15 quarks together. Cut the deck roughly in half, and flip it to the reverse side. Shuffle together and place to the left of the play area.
- Place the 3 Annihilate cards to the left of the Beam.

Field of play:

- The area to the right of the Beam is the Collider, where the cards will be placed at the beginning of each turn.
- To the right of the Collider is the discard pile.
- Above the discard pile, rotated 90° is the Annihilated pile.
- The area above the Collider is Scattered Quarks
- The area below the Collider is the Detector



Key Terms

- **Color Confinement** (confined quarks):
 - a trio of quarks consisting of one red, green and blue, OR
 - one anti-red, anti-green, and anti-blue; OR
 - a pair of quarks consisting of one color and it's anti-color.
- **Free Quark:** any quark in the Collider, at the Detector, or Scattered that is not confined.
- **Annihilate:** remove from the game by placing in the Annihilated pile.
- **Flavor:** the type of quark, up, down, charm, etc

Winning the game: The game ends immediately if you assemble a set of 5 quarks at the detector consisting of 2 Up quarks, 1 Down, 1 Charm, and 1 Anti-Charm with the color confinement: red, green and blue and any one color and it's anti-color.

Losing the game: The game ends immediately if 2 Up quarks, 2 Charm quarks, or 3 Down quarks are annihilated. You may also end the game if you realize the correct colors required to confine a Pentaquark are not in the Beam.

Gameplay: Each turn has two phases, the Beam phase and the Collider phase. When the Beam Deck runs out, you will also perform a Refresh phase.

Beam Phase

Place 3 cards from the Beam into the Collider, then resolve any revealed events.

(Note that the cards are not flipped when placed in the Collider, so the top card of the Beam will be the first card placed next turn.)

Collider Phase

Distribute one card to each of the different play areas in the following order.

1. Scattered
2. Detector
3. Discard

If there are not enough cards in the Collider to complete any step, it is simply skipped.

At any time during this phase, you may confine free quarks by putting them in the appropriate sets. You may rearrange these quarks freely, even those previously confined.

If a quark and its anti quark (for example, up and anti-up) are ever present together at the Detector or Scattered, they are immediately annihilated. This can be prevented if one or both of these quarks are color confined.

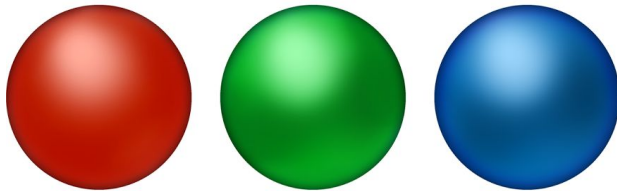
Refresh Phase

- Detector - Discard all free quarks. You may then optionally discard any additional quarks as you see fit. (Note: this will remove the confinement, and thats ok)
- Scattered - Discard all confined quarks. Annihilate the remaining free quarks.
- Check for loss condition.
- Add 1 Annihilation card to the discard pile, shuffle, flip the deck, and place it in the Beam location.

WIN CONDITION QUICK REFERENCE



COLORS REQUIRED TO WIN



AND ANY
OF THE FOLLOWING:

