

CODON CLASH: RULES!

Players: 3 to 5

Ages: 15+

Play time: 20-50 minutes

THEME:

Inside every cell, ribosomes read RNA sequences three letters at a time (codons) to build proteins from amino acids. Each codon encodes an individual amino acid. In Codon Clash, players compete to assemble their amino acids by matching RNA codons to the correct amino acid cards, played carefully by their opponents.

OBJECTIVES & OVERVIEW:

Be the first player to correctly encode all your amino acid cards by correctly matching RNA codons to claim and extend your protein chain.

COMPONENTS:

-80 RNA Codon counters

-21 Amino Acid cards

-RNA Codon Counter bag

Individual RNA sequences should not exceed 10 counters per player, any counters over the limit should be returned to the bag from the end of the sequence.

SETUP:

- 1) Shuffle all Amino Acid counter and deal an equal number (max 3) to each player which they should keep hidden.
- 2) Shake Counter bag with counters inside and deal 7 to each player. These may remain face up on the table and appear in sequential order from when they were drawn.
- 3) Youngest player starts!

On your turn:

- A) Draw an RNA codon from the bag and add it to the start of your sequence, also reveal a hint from any of your cards. (Category or description of one amino acid)
- B) Play the first 3 codons in your sequence and hope it is not claimed by your opponents!

If no one claims your codon, take a counter from the bag and place it anywhere in your sequence!

However, if your codon is claimed the claiming player should discard their matching amino acid card and return the codon counters to the bag before taking three new codons and adding them in order to the start of their sequence.

EDUCATIONAL LEARNING OUTCOMES:

- Correctly match RNA Codons to their corresponding amino acids.
- Recognise the degeneracy of the genetic code (multiple codons can encode the same amino acid).
- Recognise the functional role of stop codons in terminating protein synthesis

Top Tips:

- Remember hints given by other players and try to predict which cards they are holding!
- Players should read aloud RNA codons as they are placed down, as well the amino acid names to ensure accessibility for all players as well as to reinforce learning.

AMINO ACID CARDS

- 20 different Amino Acid cards, plus 1 Stop card encoded by three stop codons.
- All Amino Acid cards show: Name, Category, Hint/Detail and all the encoding RNA triplets.
- Stop card is the same but does not encode an amino acid. If a Stop card encoding triplet is played, the rotating order of the game STOPS and the player holding the stop card takes another turn.

GLUTAMIC ACID
Acidic (negative)

Longer acidic side chain, common in active sites

Codons:

GAA, GAG

THREONINE
Polar (uncharged)

Polar amino acid with a hydroxyl group

Codons:

ACU, ACC,
ACA, ACG

U A C G