



The chemistry card game

Number of players: 2-6

Game time: 15-45 minutes

Recommended knowledge: A-level or first year university level knowledge in organic chemistry.

Welcome fellow scientists!

You have been selected as the leads of synthetic chemistry in each of your companies to compete in an exciting new opportunity. You will be competing in a battle of wits for the ownership of a starting compound; all of you will begin your organic synthetic routes from this compound. However, each of your companies has a different goal, and therefore a different target product. A target you must keep secret from prying eyes- because if your competitors get wind of what you're working towards, your company will scrap the pathway and you must restart with a new target product. Corporate espionage sucks! But the first to obtain a correct synthesis route that stands up against the scrutiny of peer review will win the patent for their company. Glory, royalties, and a promotion await the winner- get synthesising!

HOW TO WIN: Play all the cards you need for your synthesis pathway and pass a peer review from other players.

LEARNING OUTCOMES:

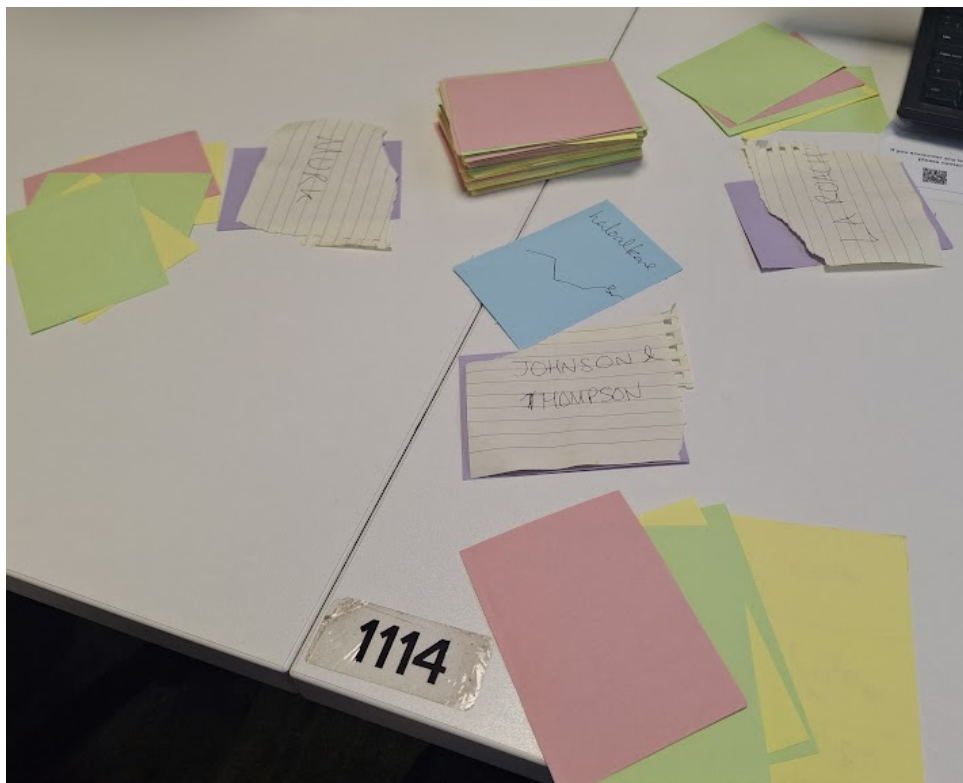
- Implement knowledge from first-year organic lectures to individually sketch a synthetic pathway.
- Develop a pathway with cards in order to assemble a route to a product, including all reagents, conditions, and intermediate products.
- Understand what a role in the chemical industry requires.

SET UP:

- 1) Each player selects a company to play for. Take the appropriate nametag and card sleeve.
- 2) Shuffle the main deck. It should only contain action, reagent, and compound cards. Deal five cards to each player. The rest of the main deck is now the draw pile.

- 3) Shuffle and select a starting compound. Place it so it is visible to all players.
- 4) Shuffle and deal each player a Final Product card. Each player will keep this secret by placing it in their company card sleeve.
- 5) Each player is given a whiteboard and pen to map out their synthesis routes.
- 6) Everyone has a 5-10 minute thinking period to map out routes before card-taking starts.

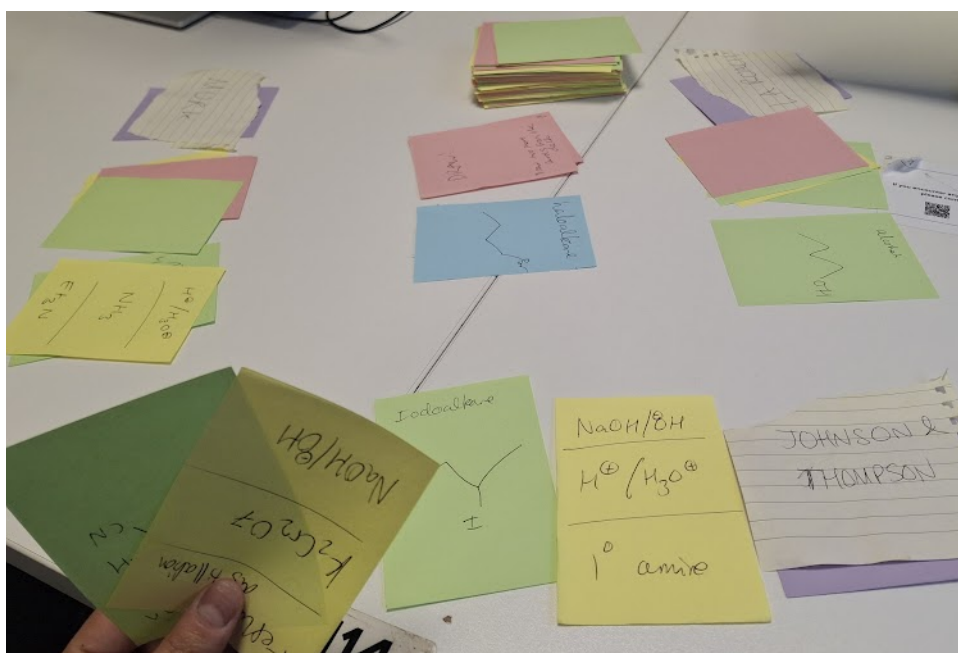
SET UP EXAMPLE:



ON YOUR TURN:

- 1) Draw 2 cards
- 2) Play up to 2 cards. These will be action, reagent, and compound cards.
 Action- Its effect is used immediately and the card is then placed in the discard pile.
 Compound- The compound is now part of your synthesis route.
 Reagents and conditions- A clear green tile is placed over one reagent or condition selected. Only one option from the list of three can be selected. The compound is now part of your synthesis route.
- 3) Discard down to 5 cards

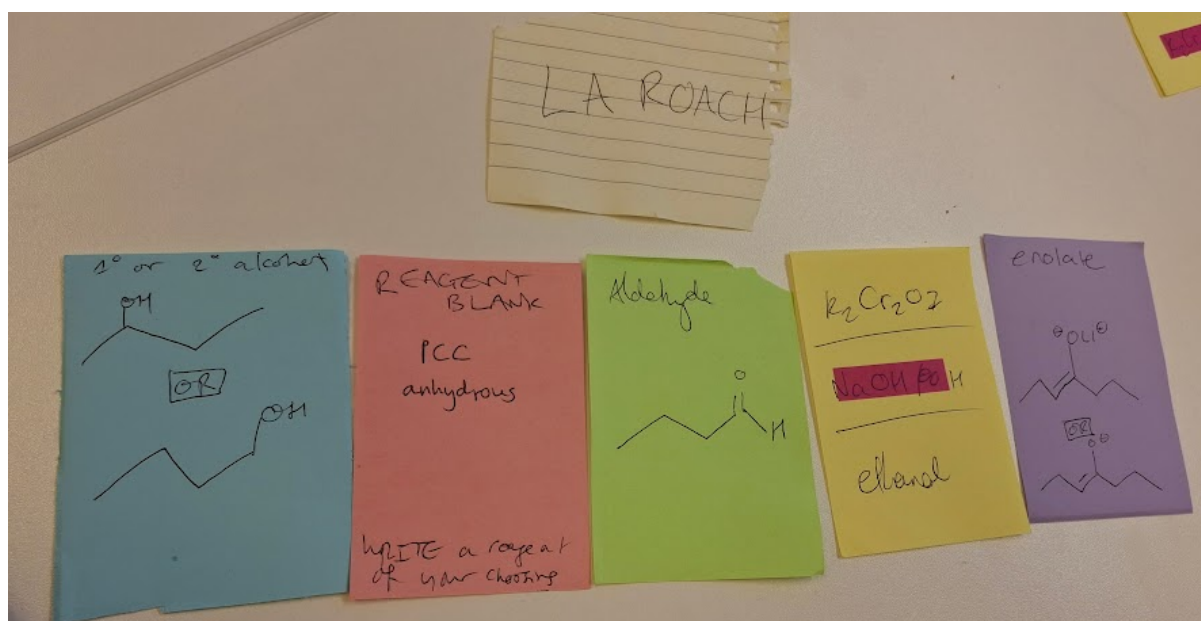
MIDGAME EXAMPLE:



BUT WAIT!: If another player deduces your Final Product, all of your placed cards must be placed in the discard pile and you must take a new Final Product card. However, if they deduce wrong, they must discard all cards and take a new Final Product card. This is **ESPIONAGE!**

TO WIN: Play all the cards you need for your synthesis pathway and pass a peer review from other companies.

EXAMPLE OF WINNING PATHWAY:



THE ACTION CARDS:

STEAL!- Take a card from another player's hand

PEEK!- Look at the next three cards in the deck and select one to go into your hand. Discard the other two cards.

SWAP!- Swap one of your played cards (Compound or Reagents and Conditions cards only) for another player's placed card. If a reagent/conditions cards had been swapped, its new owner may change the position of the green tile on that card without using a turn.

DRAW!- Draw two cards from the deck.

TAX!- Move a card from another player's hand or played cards into the discard pile.

STOP!- Stop the current action card.

INVENTORY:

6 X purple Quick Rules cards.

92 X green Compound cards.

72 X yellow Reagents and Conditions cards.

58 X red Action cards.

3 X pink Starting Compound cards.

14 X blue Final Compound Cards.

72 x green plastic tiles.

6 X Dry erase markers.

6 X Whiteboards.

6 X Company name place cards.

6 X Company name card sleeves.

ADVICE:

- Play your Compound and Reagents and Conditions cards out of order so it will be harder for other players to guess your final product! You may arrange your cards in front of you in any way as long as they are visible to every player.
- Some Compounds in the game appear on Compound cards AND Reagent and Conditions cards- either card will contribute to your pathway!
- The Condition "Reflux/distillation" is NOT the same as "Heat"
- All reagents are assumed to be used in excess, so if you want to get from an alcohol to an aldehyde, only anhydrous PCC will do!
- It's up to all of the players at the end of the game to decide if the winner's synthetic pathway is correct. Peer review and play fair!
- Creative solutions are encouraged!

IN-GAME RESOLUTIONS:

- Announce cards as you put them down- not all players are able to see from a distance!
- The STOP! card is the only card that can be played 1) out of turn 2) directly from your hand.
- If you want to get rid of a card you've already played in front of you, you may spend a turn to place them in the discard pile.
- You do not need to play the starting compound in your final reaction pathway.
- If you want to change the reagent/condition highlighted by the green tile, you may spend a turn to place them differently.

- If you must discard down to 5 cards at the end of your turn, you may ask a particular player if they would like the card(s) you're about to discard. They choose to accept or deny your card(s), but cannot change their decision once they have seen the card(s).
- If another player deduces your Final Product correctly, all of your placed cards must be placed in the discard pile and you must take a new Final Product card. You may keep the cards in your hand and/or draw to a total of five cards.
- If another player deduces your Final Product INCORRECTLY, all of THEIR placed cards AND cards in their hand must be placed in the discard pile. They must take a new Final Product card. Their first Final Product card is not revealed. They draw 5 new cards to their hand.
- Once a compound/reagent/condition is written on a played card, it cannot be erased until the end of the game.
- If a player finishes their synthetic pathway, but it doesn't pass peer review, they must take a new Final Product card and place all of their played cards in the discard pile. They may keep the cards in their hand and/or draw to a total of five cards.

COMPANIES:

- 1) JSK
- 2) Ad Astra
- 3) Zipher
- 4) La Roach
- 5) Johnson & Thompson
- 6) Murk