

Game Rules

Hunting Red Sprites with a French-suited Deck of Cards

Take photos of as many red sprites or other lightning-related flashes high above storm clouds as you can!

In this game, you become a storm chaser who photographs special light phenomena appearing above lightning-rich thunderstorms: transient luminous events or TLE in short. Along the way, you will also learn the main steps of real sprite-hunting.

Use enough standard French-suited playing cards so every player has a good supply. Each player will need about 20–25 cards, plus around 15 extra cards that everyone uses together. Usually, 2 full decks (2×52 cards and 2×3 Jokers) are more than enough for 4–5 players.

Recommended number of players: 1–6

Recommended age: 8+

Game duration: 15–25 minutes

The Story

Weather forecasts warn of active thunderstorms overnight in your region. After sunset, satellite images show cloud tops rising rapidly and spreading out, and the live lightning map confirms increasing lightning activity. This storm looks perfect for capturing spectacular nighttime light phenomena: red sprites — a type of TLE!

You also know a good viewpoint nearby — a place with a clear line of sight toward the storm and an unobstructed view of the sky above the clouds. That's exactly where the special flashes are most likely to appear. Feeling the “call of the sprites,” you pack your gear: a camera, tripod, headlamp, and mobile phone — and you head out into the night. You might even call your sprite-hunting friends to join you. Time passes more pleasantly in company, and if several viewpoints are used, the same event can be captured from multiple angles.

Getting to the observation point isn't always smooth. You might have to take a detour, or something might slow you down. And time matters: red sprites usually appear during the later, mature phase of a thunderstorm. You started on time — but delay too much, and the storm may weaken, the lightning may stop, and the opportunity slips away.

Once you arrive at your observation spot, you set your camera to night-time video or burst mode. You quickly take a picture of your phone screen showing the exact GPS time and coordinates — useful for a detailed analysis later, if needed. Then you set your camera to focus at infinity, aim it toward the storm, and start recording.

If everything goes well, one of the lightning flashes may trigger a red sprite, a sprite halo, or even a blue jet or a giant jet above the clouds. With the right settings and careful watching, you might not only capture the event on camera — you might even see the flash of a red sprite with your own eyes. Patience and persistence will eventually be rewarded.

This card game follows that whole process in a simplified and playful way.

Setup for the Introductory Game

In this game, the storm cloud and the lightning inside it are represented by playing cards. For the introductory version, simply take the top 11 cards from a well-shuffled deck. In this case, chance decides how many sprite-producing lightning flashes occur in the storm — just like in real life, where you can never know this in advance.

If you want every possible scenario to appear in the intro game, you can manually set the ratio of sprite-producing lightning. To do this, prepare the storm cards by selecting: 6 red cards (hearts or diamonds), 1 Joker, 4 black cards (spades or clubs). Apart from the Joker, the values of these cards can be completely random.

The number of cards represents the storm's lifetime, which is 11 time units in the introductory game. Shuffle these 11 cards and place them face down in the center of the play area, all facing the same direction. Tip: You may arrange them in a loose pattern, like the shape of a thunderstorm seen from above.

Shuffle the remaining cards thoroughly and place them face down as the draw pile.

In front of each player, place 3 cards face down next to each other. These are the route cards, representing the distance from the player's home to the observation point. This setup means that everyone starts equally far away (3 route sections) from their chosen observation spot.

Finally, each player draws 5 cards from the draw pile. There's no need to hide your cards — this game can be played with open hands if you like.

A prepared introductory game for 3 players



With this, the setup is complete. Let the game begin!

Game Logic

The game lasts as many rounds as there are lightning flashes in the storm — in other words, as many cards as were placed face down in the center. In the introductory game, this means 11 rounds.

In every round, each player has a task to complete. At the beginning of the game, the task is to complete a route section on the way to the observation point. Later, once there, the task becomes photographing the light phenomena above the clouds.

To complete a task, a specific card value must be recreated using the numbers of the cards in hand, by adding and/or subtracting them. For this reason, each card is assigned a number value: Ace = 1, number cards (2–10) = their own value, Jack = 11, Queen = 12, King = 13, Joker = any whole number from 1 to 13.

For example, suppose you must produce the value 4 using your cards. If you have a card worth 4 or a Joker, you can use it immediately. You could also make 4 by adding 3 + 1 (Ace). Or by adding 1 + 11 (Ace + Jack) and then subtracting 8, because $1 + 11 - 8 = 4$. If needed, you may use all five cards in your hand.

Place the used cards in front of you in the order of the calculation, and say the operation out loud. At the end, the result must match the required value — in this example: “ $1 + 11 - 8$ equals 4.” Here, only the number values matter — the suits do not.

It is not always possible to create the required value with the cards you have. This is not the player's fault.

Gameplay

Start of a New Round

Each round begins by flipping over the next storm lightning card. A different player flips the card each time, and that player starts the new round. Players then take their turns in order, one after another. When everyone has taken their turn, the round ends. A new round begins as long as there are still face-down storm cards on the table.

What a player must do on their turn depends on whether they still have face-down route cards in front of them — in other words, whether they have already reached their observation point.

Reaching the Observation Point

If a player still has face-down route cards, they must continue their journey. They flip over their next route card. To advance, the value of that card must be recreated using the values of the cards in their hand through addition and/or subtraction.

If the flipped route card is a Joker, the player automatically moves forward. They discard one card from their hand, and then take the Joker into their hand.

If the value can be recreated, the player places the used cards into the discard pile, takes the route card into their hand, then draws from the draw pile until they have 5 cards again (if needed). This counts as one step forward, and their turn ends.

If the required value cannot be recreated, the player doesn't move forward. The flipped route card stays where it is, the player draws one card from the draw pile, and they will have to try that route section again in a later round.

It may happen that a player ends up with more than 5 cards. This is completely fine.

Observing at the Observation Point

If it is a player's turn and they no longer have route cards, they have reached their observation point. Now their task is to observe and try to photograph any above-cloud electrical flashes—if any appear.

Whether there is something to photograph depends on the storm card that was flipped at the start of the round. If the storm card is black (spades or clubs), it shows a regular lightning flash, which does not produce a red sprite. There is nothing to observe, so the turn passes to the next player.

If the storm card is red (hearts or diamonds) or a Joker, that lightning can create a sprite! To “photograph” the sprite, the value of the storm card must be recreated using the cards in hand. If the storm card is a Joker, flip the top card of the draw pile — its value is what needs to be recreated.

If the value cannot be recreated, the player was not able to photograph the sprite. They draw one card from the draw pile, and must try again in a later round.

If the player succeeds, the sprite was successfully “photographed”! The player draws one card from the draw pile — this becomes the sprite photo. This card is placed aside in their “album”, then they draw cards until they again have 5 cards in hand.

The turn then passes to the next player.



Here is an example position from the introductory game, played with 3 players. We are at the end of Round 4: four storm cards have been revealed, and three of them have already been rotated to show they were used in previous rounds. In earlier rounds, Players A and B already reached their observation points. The most

recently flipped storm card was a Joker, so the players turned over the top card of the draw pile to determine the actual lightning value. This turned out to be a Jack of Diamonds (value 11). Both A and B successfully observed the sprite: Player A took a color photo (represented by the Queen of Hearts), while Player B captured a black-and-white photo (represented by the 7 of Spades). They placed these cards next to their hands as their photo album entries. Meanwhile, Player C had only even-valued cards in the previous round, so they could not create the required value 3 to complete their final route section. They drew a 7 of Diamonds in the last round, and so they will finally be able to complete their last route card during this round. Possible valid equations include: $8-7+2=3$, $4-8+7=3$. Using one of these, Player C will complete the route section and reaches their observation point.

End of a Round

When every player has taken their turn, the round comes to an end.

The most recently flipped storm card is then rotated to show that this lightning flash has already been used. If there are still face-down storm cards left on the table, a new round begins.

End of the Game and Scoring

When the last round associated with the final storm card is completed, the game ends. The players then evaluate the photos collected in their albums. The most successful player is the one who earns the most points.

Scoring the Photos

Black cards (Spades or Clubs), values 1–10:

Black-and-white (grayscale) sprite photo — 1 point

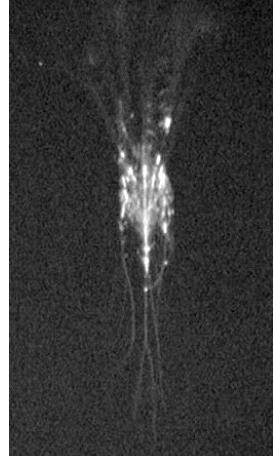


The first documented red sprite in 1989.
(Franz et al., 1990, Science)

Black face cards (Jack, Queen, King): Detailed black-and-white sprite photo, perhaps including the Moon or nicely shaped clouds — 1.5 points



<= A group of red sprites
photographed from Baja, 2018.
Photo by József Bár



Red sprite with details
Photo by Oscar van der Velde
=>

Red cards (Hearts or Diamonds), values 1–10:

Color sprite photo — 2 points



Mobile-phone photo of a red sprite.
Photo by Serafin Zufferey

Red face cards: Detailed color sprite photo with a nicely composed scene (for example, including a tree or building) — 2.5 points



Photo by Nicolas Escurat



Photo by Christophe Suarez

Joker: The sprite flash was also seen with the naked eye — 3 points

Photo by Paul Smith



Feel Free to Modify the Rules!

Players are encouraged to freely adjust the number of rounds or the scoring rules in the introductory game, and to share their experiences about which variations made the game the most fun and exciting.

Here are a few suggestions.

The number of lightning cards in the storm determines the length of the game. Setting shorter storms (10–15 cards) is recommended so the gameplay remains fast and varied. Instead of one long storm, you can also play multiple storms in a row. For example, a “storm season” might consist of three storms. In this case, players can compete for points not only in each storm but also across the entire season.

You can change the amount of sprite-producing lightning by pre-selecting the storm cards with a different ratio of red and black cards.

Players can draw lots to determine how far they live from their observation point. We recommend distances between 3 and 5 route cards.

One method is to flip the top card of the draw pile. If it's a Joker, draw another card. The value of the drawn card determines the distance, based on the table below.

Card Value	Storm Length (total cards)	Sprite-Producing Lightning (red cards)
1-6	11	7
7-10	13	8
11-13	15	9

The card used for drawing lots may also be used as the first storm card.

Card Value	Distance from Home (route cards)
1-6	5
7-10	4
11-13	3

This card may also be used as the player's first route card.

Note that photographing red sprites is not easy in reality. It happens that a storm may not produce any, or they may simply not be captured. The purpose of this game, however, is not to accurately simulate real-world detection rates, but rather to introduce the general practice and process of sprite observation.

You may also use the following optional scoring system:

- Black cards (1–10): A red sprite appears in the photo — 1 point
- Black face cards: Video includes a sprite halo and/or dancing sprites — 1.5 points
- Red cards (1–10): A blue jet is captured — 2 points
(in reality, blue jets are not tied to specific lightning flashes)
- Red face cards: A ring-like sprite (ELVE) is captured — 2.5 points
- Joker: A giant jet is captured — 3 points
(in reality, giant jets are also not tied to specific lightning flashes).

With multiple players, the game can be made more dynamic by drawing cards from each other before a new round begins. Everyone holds their cards face down and offers them to the player on their left, who draws one card. At the same time, each player draws a card from the player on their right.

Wishing you a fun and rewarding time storm chasing and sprite hunting!

József Bór (Bor.Jozsef@epss.hun-ren.hu)

Translated from Hungarian with the help of ChatGPT.

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Summary:

Card Values: Ace = 1, Number cards = 2–10, Jack = 11, Queen = 12, King = 13

Game Setup: Place the storm lightning cards (face down) in the center. For each player, lay down the route cards leading to the observation point. Each player draws 5 cards from the draw pile.

Gameplay (per round)

Optional rule for multiple players: Before a new round begins, players may draw one card from each other in a circular pattern.

Flip one storm lightning card.

On each player's turn:

If the player has not yet reached the observation point:

- Movement toward the observation point: Flip the next route card unless there is one already flipped from the previous round
 - o If recreation of the card value can be accomplished
 - Take the route card into your hand,
 - Refill your hand to 5 cards.
 - o If not possible: Draw one card from the draw pile and Try again in a later round.

If the player has already reached the observation point:

- If the storm lightning card this round is not sprite-producing (black): nothing to do
- If it is sprite-producing (red or Joker):
 - o Recreation of the card value (“Photographing”)
 - If can't be accomplished, draw one card from the draw pile.
 - If successful:
 - Draw 1 photo card, place it in your “album”
 - Refill your hand to 5 cards.

At the end of the round, rotate the storm card to show it has been used.

End of the Game & Scoring

When the final storm card's round is completed, the game ends.

Scoring:

- Black cards (1–10): 1 point
- Black face cards (11-13): 1.5 points
- Red cards (1–10): 2 points
- Red face cards (11-13): 2.5 points
- Joker: 3 points