01 BASIC PATTERN RECOGNITION

Activity: Magnet Magnet

Description: Activity in which players have to spot patterns in a card-claiming game in which players have to recognize patterns and differentiate between sequences.

Objectives: Teach students to determine different types of patterns, associating distinct actions with different conditions, and to be aware of their general situation.

Requires: Sets of Magnet Magnet (Each set takes 2-6 players), colored blocks provided.

Exercise: Begin by introducing the children to different types of patterns. Play an activity where students have to spot patterns using blocks of different shapes and colours. Then lead students through the original and two adaptations of Magnet Magnet, ensuring that the children are aware of the different conditions that can be fulfilled, and are aware of different patterns throughout the game.

Introduction

The main concept of the lesson is learning how to recognize patterns. Student will learn how to differentiate between different sequences, recognize how the different conditions of sequences are fulfilled.

Begin the lesson by introducing the concept of patterns (defined as recurring sequences), and show them some simple examples. As an example point out how the succession of traffic signals is a pattern that repeats itself. Ask the children what colour comes next when the traffic signal turns yellow. You may use coloured beads (or some other suitable item) to illustrate how colours, numbers and shapes can form patterns.

Use this discussion to lead them into the first activity.

Activity

Objective: To be the last player to have cards/collect all the cards.

Setup: Begin by assuring that the cards can be differentiated from each other. Then shuffle the cards and deal them equally between all players, any excess cards are to be placed into a face up pile into the center. Each pile dealt to a player is to be held face down as a deck. The players are not to look at the contents of the deck.

Game play: Player to the left of the dealer starts. Moving clockwise, each player take turns flipping over the top card of their deck onto the center pile (if there were no extras, create a new pile in the center).

The players are to slap the deck of cards they created if they spot one of these three:

1. A 'Squish'-two of the same magnet designs, with one other magnet type between them (e.g. if there were to be a 'U' shaped magnet placed, then a 'Cube' Magnet and finally another 'U' Magnet. Or a Twin-Sticker-Twin combination),
2. A 'Pair'-two of the same magnet types without a card separating them (e.g. an 'Alphabet' magnet next to another 'Alphabet' magnet),
3. A 'Car Magnet' card, or
4. A 'Magnetic Field' card.

If a 'Squish' or a 'Pair' are spotted, the first player to slap the deck get to collect all the cards in the center pile and add them unshuffled, face down to their deck.
If a 'Car Magnet' is spotted, the first player to slap the deck and say "Car" get to add the pile to their deck, if "Car" is not said, the first play to say it gets the pile.
If a 'Field' card is placed, the player who placed it becomes the 'Fielder'. The number atop the 'Field' card corresponds to the number of cards the next player can play to play one of the four above (Squish, Pair, Car and Field). Refer to responses for them if they are played, if another 'Field' card is played, they're the next 'Fielder'.
If none of them are formed the 'Fielder' takes the pile. Play continues once the pile is added, the player who just collected the pile starts the next pile for the center.

End game/Scoring:

Once they place all their cards, they're out. When there is only one player left/someone has collected all the cards, they are the winner and the game is over. Keep in mind this game may end up running long, setting a time limit is suggested.'

Rule Adaptations:

1. The 'Fieldless' adaptation: when the Magnetic Field cards are removed.
2. The 'Mini Magnets' variant: when the Car Magnet card appears, the teacher should open cards from the draw pile, and lay them in a row. The first student who can spot a matching pattern between any two cards wins the open pile. Matches include color, shape and number. The 'U', 'North', 'Cube', 'Sticker' and 'Circle' Magnet cards are treated as 1. The 'Twin', 'Ball', Alphabet' and 'Circle' Magnet cards are round(ed) shapes, respectively, the 'U', 'North', 'Cube', and 'Sticker' are angular shapes. The colors are the colors on the background of each card.

Tell students that they will have to look for certain patterns which will let them make 'Squishes'. Remember to show them the types of cards in the deck and examples of the different patterns that they have to look out for.

Make sure that the patterns that they have to look out for (Squishes, Pairs, Car Magnets) are explained well through a few examples and counter examples. For example, ask

them why ball-cube-ball is a Squish, but why a ball-cube-circle-ball combination isn't.

Spend a few minutes explaining the Fieldless variant. When the 'Magnetic Field' card appears then you will have to draw and place cards (one at a time) in a row for all the players to see. Players have to look out for any two cards which match, and the first player to do so gets to keep the central pile of cards under the Thief card. Explain to the students in detail the different ways in which cards can be matched:

- by number (e.g. four alphabet magnets and four ball magnets), or
- by colour (green circle, green 'U'), or
- by shape (an angular cube, an angular north magnet).

Reiterate that the objective of the game is to win by getting the most cards.

Consolidation

During the game constantly encourage students to be active and aware in keeping a look out for the patterns. Remind them that they have to be on the lookout for the different conditions which enable them to claim cards. Point out that they have to be aware of the previous 2 cards, when a new card is about to be flipped over. As Pair is a pattern of 2 of the same cards, one after another in sequence, it will be easier to notice as compared to a Squish. This will be tougher to observe because it is a pattern of 2 of the same cards, but separated by a single different card in the middle of the sequence. Ensure students are watching out for this pattern, as it requires attention across 3 cards.

Students will have to be alert about the different qualities they can match when the cards are laid out as a response to the Thief card. If your students encounter difficulties in the process of having to spot common qualities between the cards lead them to use a more systematic approach. For the first few rounds ask them to name the number, shape and colour of each new card which is drawn. It will be easier to spot similarities when the qualities are named aloud. You should also allow the students to come up with their own ways of matching the cards if they are able to- for example both the U and the North magnets have red in the design or the twins, alphabets and balls all have multiple faces.

Summarize the lesson by pointing the different conditions and different patterns they had to look out in order for them to claim cards. To be able to do this it was essential to pay attention constantly, even during other people's turns. They should also have been able to differentiate between different sequences of cards. Wrap up by discussing applications of these skills.

Focal questions:

1. What do you have to pay attention to if you want to look out for a Squish?
2. Where do we see patterns in real life?
3. What are the different ways in which we can compare the Alphabet magnets and the Ball magnets? (shape, colour)

Key Points:

1. Differentiating between sequences
2. Fulfilling different conditions
3. Being aware of the general situation

Extension

Possible applications to the students' lives:

1. Students could notice patterns to assist them in reacting to situations. If they notice that every language lesson is followed by a game session, they will know that they should behave themselves so they will be allowed to play.
2. Students could notice patterns to understand people better. If someone looks uncomfortable about a situation that pops up multiple times, they could help their fellow student
3. Pattern recognition could be applied to help with algorithmic and graphic math in their future studies
4. Pattern Recognition can be used to help understand certain processes we have in society, such as speech patterns that are seen as 'polite' and even could be used in mundane ways such as helping to understand the need to look both ways before crossing the road.