Dragonfish is a fun and educational game for 2 to 4 players to teach children math skills by trying to catch fish using addition and subtraction - the game's rule can be adapted to introduce more mathematical challenges, depending on the players' skill level.

Contents of the card game:
67 Pond cards - with identical blue backs - used on the "Fishing Ponds".
$\checkmark 15$ numbered cards with fish - "Fish Card" (darker blue background).
$\checkmark 50$ numbered cards with small bugs - "Bug Card".

- 2 old bicycles cards - "Bike Card".

Fish and bug cards are referred to as "Animal Cards".


26 Helper cards - with identical green backs - used for the "canal island" or held in hand.

- 12 cards with waterways - "Canal Cards".
- 6 cards with fishing hooks - "Hook Cards" (darker green background).

マ 4 cards with scissors - "Scissors Cards" (darker green background).

- 2 cards with magnets - "Magnet Cards".
- 1 card with a fishing net - "Fishing net Card".
$\checkmark 1$ card with a symbol showing all players to rotate seats - "Rotate places Card".

1 Blank spare card to replace any lost card or create you own card.


## Winning the game

To win the game, players must catch fish (cards). Each fish card has a number (of points) on it. If there are 2 players, you win if you catch 6 fish or fish that add up to 60 points. If there are 3 players, you win if you catch 5 fish or fish that add up to 55 points. If there are 4 players, you win if you catch 4 fish or fish that add up to 45 points.


## Getting started



1 The players take turns as a card dealer to shuffle two separate stacks of cards - the Pond Cards (blue backs) and the Helper Cards (green backs).

2 Let's start with the Helper Cards. Four random Canal cards are taken out of the stack, shuffled and placed face up in a "Canal Island" as a $2 \times 2$ square set (Figure 1). The remaining cards are re-shuffled and placed, face down, as the draw stack. Naturally, the discard stack is empty at the beginning.

3 Then, out of the Pond Cards stack, four ponds are created with 6 face up cards and they are placed as a $2 \times 3$ set, adjacent to each side of the "Canal Island" (Figure 1). The remaining Pond Cards are placed, face down, as the draw stack. Naturally, the discard stack is empty at the beginning. Each player is in front of a pond. The 4 ponds are used by all players.

## Playing DragonFish

The game is played clockwise and the player to the left of the card dealer starts the game. There are two steps. The first step involves the green Helper Cards, the second involves the blue Pond Cards:

## Step 1 The Helper cards

A Case one: if the player picks a card from the Helper Card draw stack. Depending on which card is drawn the rules are as follows:


Hook Card - the card can be kept in hand not showing it to the other players or it can be played immediately against another player, who has caught a fish. The number on the Hook Card must be at least as big as the number on the Fish Card. If the other player has a Scissors Card in hand, that card can be played, thereby "cutting the Fish Card free". If not, the other player must hand over the fish card to the player and it is the next player's turn (step 2 is skipped). Once used, the Helper Cards are placed on its discard stack.

Scissors Card - the card must be kept in hand for now. It can only be used to stop someone who played a Hook Card against you and is placed on the Helper card discard stack afterwards. It cannot be played first.


Canal Card - it must be played immediately when drawn. The player must replace one canal card from the Canal Island. Note: The replaced card is placed on the Helper Card discard stack.


Fishing net Card - it must be played immediately when drawn. The player must choose one pond and "empty" the pond by removing all Animal Cards and replace them by new cards from the Pond Card draw stack. Removed Pond Cards are placed on the Pond card discard stack. Note any Bicycle Card in the pond must remain. The Fishing net Card is placed on the Helper Card discard stack.


Magnet Card - it must be played immediately when drawn. If possible, one Bike Card from a pond must be moved to the Pond Card discard stack and replaced by a new card from the Pond Card draw stack. The Magnet Card is just placed on the Helper Card discard stack, also if there are no bicycle cards.


Rotate Card - it must be played immediately when drawn. All players keep their Helper Cards in hand, but rotate one seat clockwise. Since all the Fish Cards are left on the table, the fish are now owned by the player taking the new seat.

B Case two: Instead of picking up a Helper card in Step 1 A), the player can play a Fish hook card he/she has on hand. The rules are as explained under Step 1 A) for the Hook card.
$\checkmark$ At this step 2, the player must attempt to complete a calculation "in one" of the four ponds. The player points to at least $\mathbf{3}$ Animal Cards. The first card is the "sum card" (best is a fish card). The player then must achieve a calculation using the other cards, added/subtracted, to reach that sum. Note that you can only use at most 1 Fish Card in the calculation.
$\checkmark$ As an option, before attempting to complete a calculation, the player may swap one Animal Card from the chosen pond with another animal card from another pond by swimming along any swim lane connecting the two ponds. The swim lanes are imaginary straight lines in the pond that are connected to other ponds via a path in the Canal Island (see dotted red lines in Figure 1).
$\checkmark$ Having completed a calculation, all pond cards used in a calculation are put on the Pond Card "discard stack" - except any Fish Card, which the player will keep as a "catch" and must be placed on the table in front of him/her. New cards from the Pond Card draw stack are used to fill up the pond.

## Example of DragonFish with 4 Players

Assume the cards have been dealt as shown on Figure 2 by player A (card dealer). It is now player B's turn.


Player C picks a card from the Helper card draw stack. It is a Fishing net Card and must be played immediately. Pond 4 is chosen and all animal cards are replaced. The player now wants to catch the Fish of 10 in Pond 2 and chooses to swap the card 7 in Pond 3 with the card 1 in Pond 2 using the swim lane shown in Figure 3. The player then says "Fish 10 equals 3 plus 7" and moves Fish Card (10) in front of him/her, discards the 7 and the 3 from Pond 2, replacing the 3 cards with new Pond cards. Assume these are a 9, a 2 and a Fish 20. The Pond 2 and Pond 3 now look as shown in Figure 4.

Player A wants to catch Fish 20 in Pond 2. Fish 20 card can swim to Pond 3 using the swim lane and swap places with the card 1 in Pond 3 as shown in Figure 4. Once swapped, Player A says "Fish 20 equals 9 plus 8 (=17) plus 5 (=22) minus 2 (=20)" and claims the Fish 20 in Pond 3. The used cards in Pond 3 are discarded and replaced by new Pond cards. Assume these are 4, 2, 8, 7 and Fish 5. The Pond 2 and Pond 3 now look as shown in Figure 5.

The game continues as illustrated, until a player has either 4 fish cards or a sum of 45 fish points, as there are 4 players in the game.

## Adapting DragonFish

As players get more experience, the game can be made more difficult. For example:
$\checkmark$ Animal cards can only be swapped using swim lanes, if at least one of the cards is a Fish Card.
$\checkmark$ Introduce multiplication in the calculations.
$\checkmark$ Allow concatenation (assembling signs together). For example: the 1 of animal card " 1 " and the 4 of animal card " 4 " can create a new number " 14 " seen as a whole number.
$\checkmark$ Introduce division (rounding to nearest whole number) in the calculations.

