



Instructions for the Brown Bear Survival Game

In this game, students pretend they are brown bears living in the interior of Lake Clark National Park. They will strategically move around the map, eating food and interacting with other bears. At the end, they will calculate the body fat percentage they have amassed and determine whether they are able to survive.

Set Up

Print the Game Board from the file provided. The board should ideally be at least 35" x 28".

Print the Game Pieces from the file provided and cut out the individual chips (11 of each color, labeled "Den" and the numbers 1-10).

Assign students one of the 5 different bears (white, yellow, red, blue, green). If needed, students can play in teams, with ideally no more than 2 per team (in which case, one is the bear and one is the "biologist" recording what the bear eats).

Once the teams are assigned, give each bear group a data sheet, which explains details about their specific bear, including sex, size, how far it can move, any defensive traits, and amount of food needed to survive each season.

Game Play

To start, each team will need to place their "Den" chip on a square on the map. This will be their starting and ending location. The students should take turns, starting with the Yellow Bear (Big Boar) and continuing based on size (which is labelled on the data sheets).

This game is divided into three seasons: spring, summer and fall. Each square has a seasonal set of values for vegetation and meat. An example of the values in the square could be the following: SP V1/M1; S V2/M3; F V1/M1 (meaning Spring has 1 vegetation point and 1 meat point; summer has 2 vegetation points and 3 meat points; fall has 1 vegetation point and 1 meat point).

Each season also has a limited number of turns:

- Spring is 5 Turns.
- Summer is 10 Turns.
- Fall is 5 turns or as many as it takes to get back to the den. For each turn beyond 5, points are subtracted from the team's score, starting with 2 points and doubling each turn. Students still get their resource point(s) on these turns.
- Winter: There are no turns, but each bear must have returned to their den. Calculate the amount of extra food each bear amassed throughout the year. If it is greater than 20% extra, the bear will survive the winter.

Each team will take turns moving their bear around the map. The data sheets explain how many spaces a specific bear can move. For instance, the Big Boar can move up to 3 squares. Bears can move in any direction, including diagonally.

Students place the “1” chip on their chosen square for their first move, the “2” chip for their second, and so on. Leave all numbered chips on the board for each season. At the end of the season, replace the last chip played with a “1” and start the next season. For instance, after placing the “5” chip for the last move in spring, that becomes the “1” in summer. Leaving the chips on for each season allows students to see the bears’ overall seasonal movement.

After each turn, students should look on the space on which the bear ended and record the food points from that space in the appropriate spot on their data sheet.

At the end of each season (when students have taken the number of turns required), total up the meat, vegetation, and total food point values for that season.

Students should strive to get each season’s minimum number of points (listed for each season on the data sheet). If students do not get the minimum points for a season, they will still move on to the next season and try to make up the difference. They need to have extra points by winter in order to survive.

At the end of the game, bears with at least 20% body fat will survive the winter. To calculate, follow the instructions on the bottom of each data sheet.

Other Rules

Bears can move onto squares where another bear has been; just place the new bear’s chip on top of the old one. For instance, the white bear was on a square for its 2nd turn, so its “2” chip is still there. The red bear wants to move onto that square for its 4th turn and places its “4” chip on top of the other player’s “2.”

Sows with Cubs need to stay one square away from boars. If a boar moves within 1 space of a sow with cubs, the female bear must move the number of spaces they are allowed to be a safe distance from the boar. This counts as the sow’s next turn, and food point values should be recorded.

Lone bears can push another lone bear off a space if they weigh more than the other bear. The bear being pushed off a space must move the number of spaces they are allowed. The points for that square get added to their total and that constitutes their next turn.

Extensions

- Play the game a second time immediately. Any extra fat percentage points “roll over” to the next year as a surplus. For instance, if a bear ends with 27% body fat, that bear starts out with 7 food points in the spring.
- Play the game a second time, but allow students to move their den chips. Before they place them, discuss what makes a strategic den site. Where are there abundant spring resources? Where can a sow with cubs be safely away from male bears?
- To tie in the idea of carrying capacity, ask students what would happen if they played the game with more teams/bears. How would it be different? Try playing with a different number of bears.