THE FOREST EDGE: TEACHER'S GUIDANCE

The Forest Edge is a game for use in schools or other educational settings.

It is aimed at KS2 and KS3 students and sets them up as farming families in West Africa, trying to manage their lands to make money at the rainforest edge.

It explores issues connected with various parts of the UK curriculum, including geography, business studies and mathematics.

Objectives

- Learners gain an insight into what it might be like to be part of a farming family in West Africa.
- Learners practice their arithmetic skills, including addition, subtraction, the effect of negative numbers and some exposure to mean averages through a teacher-led derivation of mean average.
- Learners draw out the overall take-home message of the game, which is that the health of rainforests like those in West Africa is dependent on how the land is used.

Preparation

Before you start playing, ensure you have read through this teacher’s guidance in full and studied the A3 gameboard to get a feel for how the game works.

You will need:

- One print out of the A3 gameboard for each group of students (you need access to a black & white printer that can print on A3 paper)
- Each group of students will need:
  - Two dice
  - Pencils and erasers
  - A calculator (optional)

The game has been designed to be played within a timeframe of around 45-60 minutes, but could take longer depending on various factors. As the teacher, you can choose to end the game at any time to fit with class schedules. See ‘ending the game’ section below.

Set up and introduction

Arrange the class into 5-6 groups of learners, and seat each group around a printed copy of the A3 gameboard. Ensure each group has pencils, erasers, and two six-sided dice. A calculator would also be useful as there is a lot of arithmetic in the game, but not essential.
Announce to the class that you are playing the game *The Forest Edge* and that each group will be playing a farming family in West Africa.

Explain that the overall aim of the game is for each family to prosper and succeed as a farming community living on the fringes of the rainforest.

Allow each group (family) to read the instructions and tables on the gameboard, and ask each group to choose a family name and write it in the space provided. There is also a space for each group to draw a family portrait.

**Game play and game concept**

Game play is divided into rounds, each representing one year. Within each round, there are five actions, detailed below.

The game begins in year 1. Ask the family groups to pencil in a zero in the Rainforest Health Score box on the bottom left, and a zero in the money box on the right.

Each family has four fields – North Field, East Field, South Field and West Field – that are all initially forested. On the Annual Tracker in the middle of the gameboard, year 0 is filled with tree symbols, representing forest cover.

Over time, each family can make decisions about how they want to use their land. Land can be either forested, farmed, logged, mined, or ‘in recovery’ from previous activity.

Land use decisions made by all the families playing will affect the overall health of the rainforest, which is calculated at the end of each year. A healthy Rainforest Health Score (1 or above) will tend to deliver better outcomes for the families playing, and an unhealthy Rainforest Health Score (below zero) will tend to deliver poorer outcomes.

Random chance will also see various impacts on the families, according to the luck of the dice.

**Turn actions - detail**

1. **Make decisions about your land**
   - Draw this year’s fields in the Annual Tracker
   - Change land use for one field (if you want to)

In the first turn, each family group needs to make decisions about their land use. They can change the land use for one field each year, if they wish to. Each group then draws the symbols that represent their land use for the current year in the Annual Tracker.

The land use options (and their associated symbols) are:
The game begins in year 0, when all four fields belonging to each family are forested. Year 1 might see a family group choose to plant a cocoa farm in one of their fields, leaving the other three fields forested. Year 2 might see them choose to replace another one of their forested land areas for a rice farm.

2. Roll on the Environment Table
   - Roll two dice
   - Add Rainforest Health Score to the roll

This turn action should be done collectively. It is one dice roll and the result applies to all the family groups.

Ask someone from one of the groups (it doesn’t matter who, perhaps choose someone who benefit from being brought into the action momentarily) to roll two dice. Add the current Rainforest Health Score to the dice score and announce the number to the whole class.

For the first Environment Table roll, the Rainforest Health Score will be 0.

Check the Environment Table, which is printed on the A3 gameboard, to find out what happens:
The Environment Table effects mostly have an impact on farming outcomes. Logging, mining and areas in recovery are not affected by the Environment Table.

3. Earn money from your land

In each year, family groups will earn money from their land depending on what they have decided to do with it.

Leones are the currency of Sierra Leone, so the currency of the game is Leones.

Check the land use table from turn action 1 above to see what families earn from different uses of their land.

4. Roll on Family Events table

- Roll two dice

This turn action is done by each family group, who roll two dice and check the Family Events table to see what happens to their family.
Depending on the class dynamics and timings, you may want to allow groups to share with each other what happened to them as consequences of their dice rolls. You may also want to pause to reflect on or explain the different consequences as they occur. The overall learning point here is that life can be tough for a West African farming family.

5. Calculate Rainforest Health Score
   - Add up your family’s Land Health Score on the Annual Tracker
   - Work out average of Land Health Scores of all families
   - Add the average to the Rainforest Health Score total

You might need the calculator for this one!

First each family group needs to assess their End of Year Land Health Score by totalling up the impact of their four fields according to the following chart, which is printed on the A3 gameboard:

<table>
<thead>
<tr>
<th>For each land area that is...</th>
<th>You need to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forested</td>
<td>+1 health point</td>
</tr>
<tr>
<td>Cocoa farmed</td>
<td>+0 health points</td>
</tr>
<tr>
<td>Rice farmed</td>
<td>-1 health point</td>
</tr>
<tr>
<td>Logged</td>
<td>-1 health point</td>
</tr>
<tr>
<td>Mined</td>
<td>-4 health points</td>
</tr>
<tr>
<td>In ‘Recovery’</td>
<td>-1 health point</td>
</tr>
</tbody>
</table>

They should write their Land Health Score for that year on the Annual Tracker. It will range from -7 to +4.

Next, work out the mean average of all the family groups’ Land Health Scores. Add them all together and divide by the number of family groups. Round to the nearest number when you have fractions.

For example:
- If there are 5 groups, and their five Land Health Scores total to -12, the average Land Health Score for all the groups is -12 ÷ 5 = -2.4 … Then rounding to the nearest whole number from -2.4 you get -2, so you would then adjust the game’s Rainforest Health Score to be 2 LESS than what it shows now.
- If there are 4 groups, and land health scores total to +10, the Land Health Score for all the groups is 10 ÷ 4 = +2.5 … Then rounding to the nearest whole number from +2.5 you get +3, so you would then adjust the game’s Rainforest Health Score to be 3 MORE than what it shows now.
Add the average Land Health Score for that year to the Rainforest Health Score, which everyone should update in the box on the bottom left of the A3 gameboard. The Rainforest Health Score is cumulative.

Ensure all groups have written the correct Rainforest Health Score on their A3 gameboards at the end of this turn action before moving onto the next round on the Annual Tracker.

You may, if time allows, want to discuss the effects of the various decisions made, and chance events occurring, and how they inter-relate.

As time progresses, family groups will see that their individual decisions will affect other family groups living around the rainforest, as in real life.

**What if family groups run out of money?**

Sometimes, families may go into the red as a result of environmental or family costs.

If they have a negative money balance at the end of a round, they must try and get back to a positive money balance in the next round. They may need to take action to earn money quickly, e.g. by planting rice or logging a field.

If they still have a negative money balance at the end of a second consecutive round, they are forced by the bank to place a mine on one of their land areas in order to get back to a positive money balance.

If they still have a negative money balance after three consecutive rounds, the family group are bankrupt and are out of the game.

**Ending the game**

The game may end if you run out of time (do save some time at the end if you can to wrap up, evaluate, etc), or when all groups have concluded the 16th year of the game.

Groups may be keen to know ‘who won?’ but what will be interesting is to discuss the dynamics of the game, the events that occurred, and how certain outcomes came about.

Remember that the overall aim of the game was for each farming family to prosper and succeed as a farming community living on the fringes of the rainforest.

What ‘success’ may mean is open for discussion, and it might have transpired that chance events (rotten luck!) may have led to disastrous outcomes for everyone.

It might be beneficial to play the game a second or third time, if class time allows, for different outcomes to be observed and experienced. Linking outcomes and game experiences to wider curriculum learning objectives may be beneficial in the wrap up at the end of the game.
Credits, further support, and feedback

We hope you enjoyed playing the game, which was developed by Trading Visions for Fairtrade Fortnight 2020. If you have any questions about how to lead the game, or feedback, please do contact Tom Steele on tom@tradingvisions.org.