

SOIL GAME

Teachers manual

Ages 8+
3 to 4 players



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Introduction

This manual has been written for teachers and instructors that would like to use the soil game in their educational lessons. The manual will provide more information on the use of this educational game inside the classroom from the teacher's perspective.

The soil game contains different learning elements of which the main element is the importance of healthy soils. Raising awareness about different subjects is also a big learning part of the game. If students and future generations become more aware of the importance and the benefits of healthy soil, they will be more likely to pick a more sustainable way of working with their land to improve its soil fertility. Other learnings are types of fertilizers, manure, the use of water, crops, harvesting and planting seasons of different crops etc. The game itself was designed to be used in different institutions in Uganda. Therefore, the seasons as well as the values and needed inputs of the crops are in the context of Uganda.

This teachers manual provides an overview of the learning goals of the game. Here it is to mention, that the game has three levels with different learning goals and outcomes to make it applicable for different educational levels. Furthermore it gives suggestions on how the game can be prepared and integrated in the curriculum where you use your knowledge about different seasons, soil and problems that can occur. The first player that gains 250 points or more wins the game.

Learning goals

The soil game consists of three levels. The learning goals are getting extended every level you move up. This means that the learning goals of level one are also applicable for level two and three. Level one is aiming to reach students with an intermediate level of knowledge, here the basic elements of the game are getting introduced. The main learnings are based on the game elements, such as the crop calendar with its different crops, their seasons, inputs, and values. In level two intercropping and the possibility to reinvest the yield credits gets introduced. Therefore, the main learnings lay in the development of an entrepreneurial mindset and the importance of intercropping. In the third level the players test their knowledge through question cards. There the main learning focus lays in the different soil qualities and their values.

Learning goals per level

Level 1

- Dealing with unforeseen situations
- Gaining more knowledge about soil in the context of a farmer's life
- Learning about different seasons of crops
- Learning about the different values of crops
- Raising awareness of the importance of healthy soils
- Knowledge of different crops and farming methods
- Interactive and playful learning

Level 2

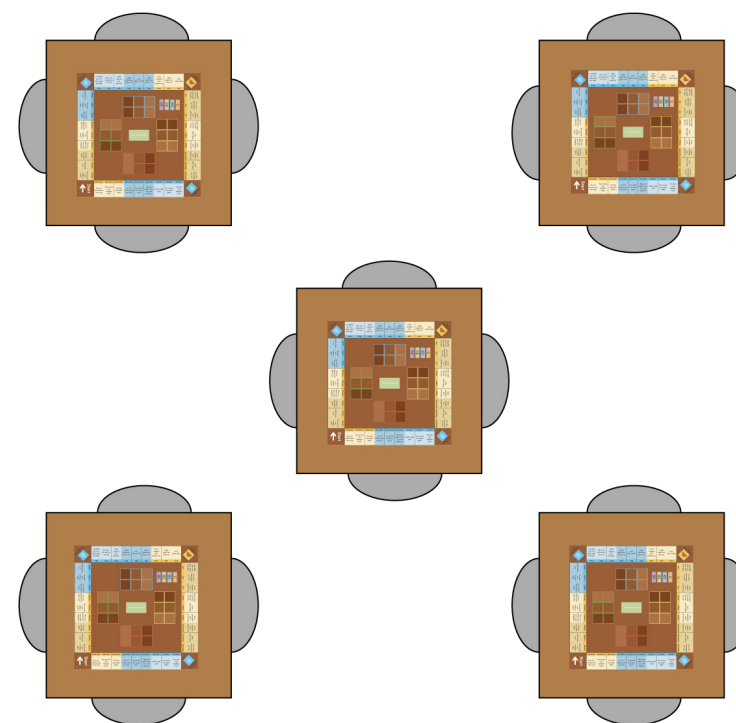
- Preventive practises as a farmer
- Developing a game strategy
- Interconnectedness of different influential factors such as water/fertilizer availability and intercropping
- Forecasting and planning ahead
- Developing an economical/ entrepreneurial mindset
 - Getting familiar with negotiations
 - Budget management
 - Investment planning
- Risk evaluations
- Value of intercropping

Level 3

- Testing knowledge about:
 - Erosions
 - Climate Change
 - Soil fertility
 - Crop rotation
 - Soil types and suiting crops
 - Micro organisms
 - Fertilizers
- Learning about different soil qualities and its value
- Interactive group learning

In classroom preparation

Every game is designed for four players. However, you are also able to play it with 3. It works best to play the game on a squared table with four chairs. You will have to spread out the tables like islands over the classroom. The number of tables depends on the number of students in your class. You roll out the boardgame on the table. You sort the crops accordingly on the side of the boardgame. You put the task cards in the middle on the task card field. You put the pawns on the start corner. You lay the playing sheets on the side of the boardgame. You sort the money and lay it on the allocated fields on the boardgame. More detailed and visual preparation can be found in the game manual section.



Length of the game

It is suggested to play the game at least two times with a group. The reason for this is that the explanation of the game takes time, and the students need to play some rounds to fully understand the game. The second time that the students will play the game, they will be able to repeat learnings, play the game more smoothly and with more fun from the beginning on.

For the first and second level

Before starting the game in the first or second level, you decide on a set number of credits as a winning number. The player that first reaches this number wins. The number you decide upon depends on how much time you have to play the game. The table below shows a rough estimation of the length of the game. The estimation in minutes is based on if the game is played for the first time or second time in relation to the set amount of winning credits at the start. However, the estimation varies per luck, knowledge of the group and the explanation from the teachers side.

For the third level

For the third level, the game takes longer since question cards get introduced and the interaction between the players increases. Therefore it is recommended to just play one round which means that the game ends as soon the first player lands on the start field again.

Levels	Amount of times played	Credits	Time in minutes
1.	First time playing	150	90
1.	Second time playing	150	60
2.	First time playing	200	120
2.	Second time playing	200	90
3.	One round of playing		90

Table 1

End of the game

There are two possibilities to end the game. The basic ending and the complex ending. It is up to the teacher to decide which ending is best according to him in relation to the students level and interest.

The basic ending goes as follows:

The first player to reach an X amount of points, decided upon before starting the game and shown in table 1 above, wins the game. Let's say you have set 200 credits as winning number, the first player that reaches that number will be the winner.

Upside for choosing this ending:

it is less complex and easy to understand.

Downside for choosing this ending:

the winner with the most credits wins, but in real life, credits should not be valued over investing and thinking ahead. The best farmer can not just be measured with credits. There are more factors that should be taken into account, like investing in tokens, fertile soil and strategic planning.

The complex ending goes as follows:

The winner of the game is the first one to reach an X amount of credits (the number is set before playing). The left overs are included in the counting. Left overs are the unused tokens and crops that every player has left at the moment that the first player reaches the 'winning' number. This means, that the first player that reaches the set credits might be the initial winner but not the end winner.

This is explained further in the following example:

Let's say that the blue player is the first one to reach 200 credits.

He then adds all his left over crops and tokens worth up to the amount of the pricing list. To simplify the game structure, the crops and tokens are worth the amount you would/did by them for.

Blue player with following credits: 200 credits 45 left over tokens (two water & one fertilizer) 65 crops (one matooke and one tomatoes)	The red player had the following left over: 180 credits 60 left over tokens (two waters & two fertilizers) 95 crops (Matooke, tomatoes and onion)
<hr/> +	<hr/> +
Total: 310	Total: 335

The red player now wins. He did not have the most credits, but he had the most valuable combination of extra's that made him win. We decided on this winning method to give a clear message that you should not only focus on the credits. But you as a player, and farmer should also take into consideration that having a back up of crops and tokens is important because you stay reluctant for unforeseen changes that might happen to you as a farmer.

Upside for playing this ending:

a good starter for a discussion with the players on which aspects should be valued over others. This ending reflects reality more.

Downside for playing this ending:

it is more complex to understand and there can be a scenario of multiple winners.

Possible topics for preparational classes

A way to warm up before starting the game is to reactivate or introduce knowledge about elements of the game. You can give preparational classes with topics that will be touched by the soil game. Think of the different types of manures and their function. Or the way in which micro-organisms play a role in your soil.

- Water
- Fertilizers
- Manure
- Micro organisms
- Wet and dry season
- Climate change
- Different Crops
- Intercropping



Warm-up questions before starting

Before playing the game, you could introduce warm-up questions to get into the content a bit before playing the game. This is to spark the student's interest and to reactivate previous knowledge on the topic. In the following sections are examples of warm-up questions. However, you could of course also think of your own questions that relate to the topic: soil

LEVEL 1

- Who has a garden at home?
 - Who uses their garden to grow their own fruits or vegetables?
 - If yes? What does the soil need to grow your own fruits/vegetables?
- Who would like to become a farmer?
 - If yes, why would you like to become a farmer?
 - What would you need to become a successful farmer according to you?
 - Why would you not like to become a farmer?
- How would you describe soil?
- Which types of crops do you already know?
- Which crops do you like to eat?
- Which crops do you not like to eat?
- What is the importance of a diverse diet?

LEVEL 2

- What types of manure do you have?
- What is the importance of healthy soil?
- What do you know about intercropping already?
 - Why is it important?
 - What are the positive effects of intercropping?
 - What are the negative effects of monocropping?

LEVEL 3

- What do you know about the function of micro-organisms in soil?
- What soil types are there?
- And which crops work best in which soil types?
- What do you know about erosion?
- How could climate change effect your soil?
 - What can you personally do to prevent climate change?
 - What can you as a farmer do with your soil to prevent the effects of climate change?
 - What environmental changes causes climate change?
 - How can you integrate sustainability as a farmer?

Explaining the game

The best practises to explain the game is to play the game while the students are watching. You then explain while playing. You are able to play the game on one of the tables and let the students that are not playing stand around the table. This way all students are able to watch and can ask questions as well.

The section of the game manual has more detailed visuals which will help you to understand the game and its explanation even further.

We suggest using the structure of explanation as following:

1. You start with the explanation of the game elements
2. Then you explain the used sheets.
3. Then you start to explain the steps that every player needs to take when playing.

Game elements:

- Crops (front and back)
- Plot of land
- Water token
- Fertilizer token
- Credits
- Task cards
- 2 dices
- Pawns
- Months on the board game
- Dry and wet season

Explanation of sheets:

- Crop calendar
- Level scoring sheet (explain the different levels depending on which level you are going to play)
- Pricelist

How to play the game:

- Every player gets three crops, three water tokens and three fertilizer tokens.
- Explain the steps (you can take a look on the step sheet)
- Explain how the corners of the boardgame are used
- Explain how the intercropping works if you play level 2
- Explain the trading principle
- Explain how to win, and when the game ends

Evaluation of learning

The game is fun to play but also has an educational purpose. To be able to get most out of the learning it is advisable to discuss the game after playing.

After playing the game with your students, there is an opportunity to evaluate the learning of the game. This can be done by discussing the questions stated underneath in the classroom. Depending on which level you played and the level of the educational institute you students are in, you can decide what questions to ask. The questions underneath are a suggestion and you can deviate from these.

Questions for all levels

- How did you experience the game?
- Does the game represent the reality?
- What did you learn?
- What kind of challenges can occur while farming?
- What would you like to learn more about?

Level 1

- In what month can you sow most crops?
- In what month can you harvest most crops?
- When you chose the crops in the beginning, did you consider the value of the crops?
- When you were able to get a new crop, did you check when you could sow and harvest the crop?

Level 2

- What are the benefits of intercropping?
- What are the disadvantages of intercropping?
- What are the benefits of investments?

Level 3

- What are methods for preventing soil erosion?
- How does crop rotation benefit your soil?
- What do you know about fertilizers?
- What interventions can you take to minimise the effects of climate change?

Possible ideas for awards

After you have played the game in the classroom. It is fun and motivating to have a little surprise reward at the end. You can give a reward to the winner of each table. It makes sense to keep it inside the topic of soil. Possible rewards could be the following:

- Seed pack (of flowers, vegetables etc.)
- Plant cutting
- Nutritious soil pack
- Certificate for the winner with name

Enjoy playing!

