



Agnetencollege
Peer

STEM-project



T VLAANDEREN

Woodlice biotope with the TI-Nspire and BBC micro:bit

Student bundle

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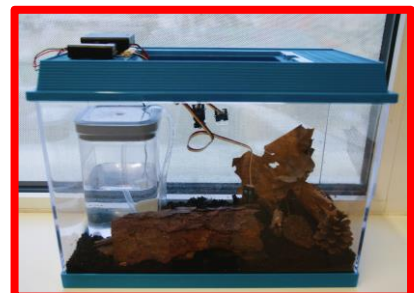
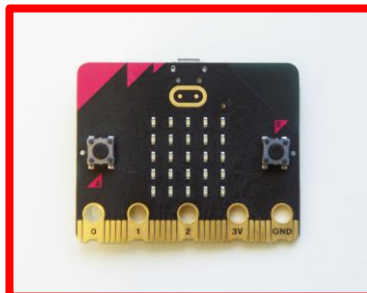


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Lesson 1 introduction and exploring

1. What?

Do you remember the story of Professor Marijns and her woodlouse research? Last year you helped Professor Marijns' lab very much. Thank you so much for that! Unfortunately, she now encounters a new problem.

Through your research we know what the ideal biotope for woodlice looks like, but now she is looking for a way to monitor these different factors. This way it can be indicated that one or more of the environmental factors are no longer at their ideal levels. She asks for your help for this. Professor Marijns wishes you the best of luck in creating a monitored terrarium!

For this project, you will work in groups of 3-4 students. List the names of all group members below.

1.

2.

3.

4.

2. The schedule

- Lesson 1: introduction + exploring
- Lesson 2: exploring + setting up the research
- Lesson 3: testing the environmental factors
- Lesson 4: process the data and conclusion + brainstorm on the biotope
- Lesson 5: building the biotope

3. Questions?

Do you have a question? Don't understand something? Then apply the following roadmap:

- 1) Brains: think for yourself first.
- 2) Books: look again at the theory.
- 3) Buddy: ask a fellow student for help.
- 4) Boss: ask your question to the teacher.

4. The research question



The research question we ask in this study is the following:

“How can environmental factors be monitored in a woodlouse biotope regulated by the BBC micro:bit and TI-Nspire?”

Write down the hypothesis below:

.....
.....
.....

5. Les 1 explore: getting to know the components

In this lesson, you will begin the investigative component. Before you can set up an investigation, you need to explore the topic. You will do this using a bookwidge.



Complete the bookwidge “1 Explore: getting to know the components.”

Lesson 2 exploring and preparing the experiments

1. What?

From the previous project, you already know that woodlice prefer to live in dark, cold and moist environments. In the exploring part, you already learned about how the different sensors work. To correctly monitor these environmental factors in the biotope, the sensors must be programmed to the correct limits. In the lab, you will measure these limits using those sensors.

During this lesson, you will set up the research. In your group, think about how you can investigate and measure these limit values.

2. Establishing the lab report

You yourself will make up the supply list and working method for your own lab report. Brainstorm first in your group about the experiment you want to set up. Once you have chosen a method, prepare the lab report. Formulate a correct research question for your experiment. Fill in all supplies and the working method correctly. Also provide a place in your report to accurately record the measured values.

Lesson 3 conducting the experiments

1. What?

During this lesson, you will conduct the research and thus the experiment. You will do this based on your prepared lab report.

2. Conducting the experiment

Follow the working method of your lab report and perform the experiment. The teacher will pay extra attention to your lab skills and orderliness during this lesson. You will immediately record your measured values in this report.

Lesson 4 process the data and conclusion + brainstorm on the biotope

1. What?

During this lesson, you will interpret the results found and form a conclusion.

2. Observations and conclusion

You do this using your knowledge gained from exploring. You may also consult any sources.

NOTE: You must also add these to your report under the heading "Sources".

3. Brainstorm on the biotope

During this lesson you will work on conceiving the idea and selecting aids and criteria in the designing component. You yourself have to think how and where you will connect the different sensors.

Lesson 5 building the monitored biotope

1. What?

During this lesson you will build your biotope. You do this based on the sketch you made beforehand. When all sensors are connected, you can test the biotope and make adjustments if necessary.

Lesson 6 continued building + testing the biotope

1. What?

You continue building your biotope. It is important that you also check that the biotope and sensors are working correctly. If this is not the case, you need to adjust them.