

**Lecture IV:  
Blended/Online Learning in Education:  
An Introduction**

**Veljo Kabin**  
**Educational technologist**

**October 1, 2024**

# Agenda

- Definitions and history
- Benefits of blended learning – for lecturers and for students
- Disadvantages of blended learning – for lecturers and for students
- Models of blended learning
- Examples of applications and how they are used in teaching

# Definitions

- **Blended learning** - the use of traditional classroom teaching methods together with the use of online learning for the same students studying the same content in the same course.
- **Online learning (e-learning)** - form of education, where instruction and learning take place over the internet and through digital learning tools or platforms like online learning platforms and learning management systems (LMS).

# History



# History 1/5

- While computers became part of everyday life for most in the early 2000s, education was slower to integrate computer technology.
- **The blended learning** as a strategy to combine both face-to-face learning and online learning became popular in the mid 2000s.
- Technological advancements, particularly the rise of the internet, learning management systems and digital tools have played an important role in the development of blended learning.

# History 2/5

Sources:

<https://openbooks.col.org/blendedlearning/chapter/chapter-1-blended-learning/>

<https://www.wgu.edu/blog/blended-learning2109.html>

- Internet connectivity and browser development allowed broader and more user-friendly resources for anyone wanting to learn.
- Web-based learning replaced CD-ROM materials. Rather than having to distribute CD-ROMs to learners, schools could simply upload learning material and assignments to the web and learners could access them with a click of a mouse button.

## History 3/5

- Schools and universities began **integrating digital tools** into their classes and lectures.
- One significant innovation was the "**Flipped classroom**" method, where students read the material or watched a video lecture before the class/lecture and used class/lecture time for practical learning. This model emphasized active learning and student engagement.

## History4/5

- In the 2010s the launch of platforms like Coursera, Udacity etc popularized Massive Open Online Courses (**MOOCs**). These platforms allowed millions of learners worldwide to access high-quality education from top universities for free or at a low cost.
- By this time most of educational institutions had **LMS** systems like Moodle, Canvas or Blackboard to manage online and blended courses. These systems provided a centralized hub for all educational activities, from content delivery to assessments and student communication.



# History 5/5

- **The COVID-19 pandemic** of 2020 marked a turning point for blended and online learning. Overnight, educational institutions worldwide shifted to distance learning which accelerated the adoption of digital platforms. The pandemic highlighted both the challenges and the possibilities of online learning.
- Today **blended learning has become the standard** in many educational institutions, combining the flexibility of online learning with the engagement of face-to-face learning. The experience of 2020 demonstrated that blended and online learning can support continuous learning, even in times of crisis.

# Benefits of blended learning – for lecturers 1/2

- **Additional educational tools** - Blended learning supports new teaching methods. By using the online element, lecturers have more learning tools to work with such as gamification, video, and interactive apps. This allows for new ways to engage and motivate their students.
- **Personalized support** - A blended learning model allows lecturers to mix and match educational tools and course content according to the needs of their auditorium. They can design lectures so that students learn some of the content independently online and then follow up with face-to-face discussions in the auditorium.

## Benefits of blended learning – for lecturers 2/2

- **More efficient grading** - Online evaluations help lecturers more accurately assess and track a student's knowledge of the material when compared to traditional grading methods. For example, when students take a quiz online, the lecturer is able to get immediate results and the student is able to get immediate feedback. This not only saves time for lecturers, but it also helps them identify students who are struggling with the material in real time.

# Benefits of blended learning – for students

- **Increased engagement** - Blended learning courses have proven to be more engaging for students of all ages - from elementary school to higher education.
- **Promotes autonomy** - Research has shown that a significant number of student feel more independent in a blended learning environment. This is largely due to the fact that blended learning requires a student to be more active in their own education and utilize goal setting and time management strategies to move through their coursework. Research also suggests this model can help students develop stronger critical thinking and problem solving skills.

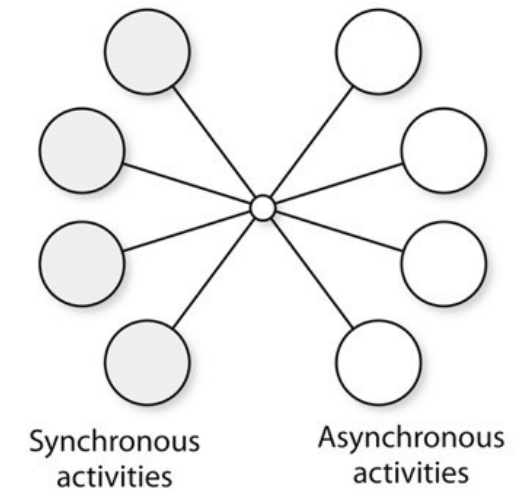
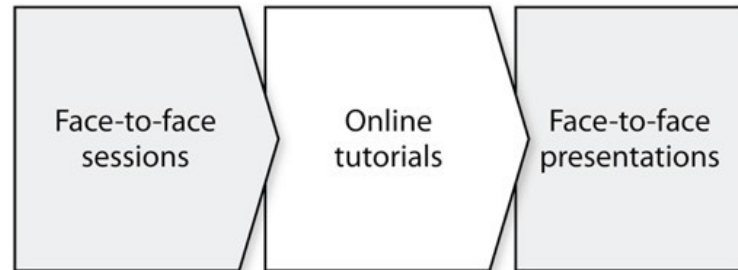
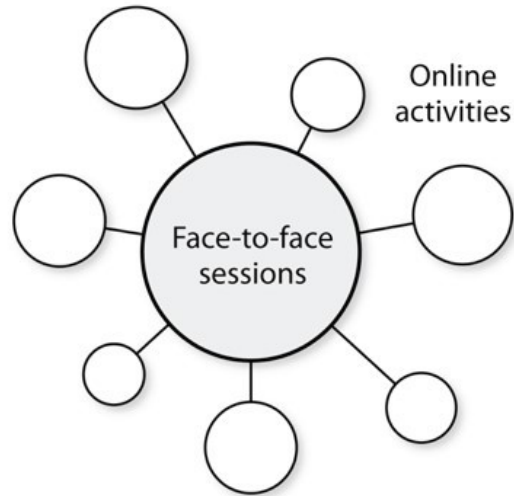
# Disadvantages of blended learning – for lecturers

- **Lack of IT training** - Lecturers (particularly those who are not very familiar with technology) need the right training and support for online instruction and not every school is able to facilitate that.
- **Less supervision** - Adapting to blended learning can be difficult for lecturers who have students that need more one-on-one support or who have less motivation in an online environment compared to a face-face experience.

# Disadvantages of blended learning – for students

- **Lack of resources** - Blended learning is only effective when it's supported by the right technology, equipment and software. Unfortunately not every student has access to a computer and the internet.
- **Technology challenges** - There may be days when the internet doesn't work or when programs and software are down and students are unable to access their courses. This can be frustrating for many students, although these bugs are often fixed quickly and students are able to continue with their work.

# Models of blended learning 1/5



Source: <https://openbooks.col.org/blendedlearning/chapter/chapter-1-blended-learning/>

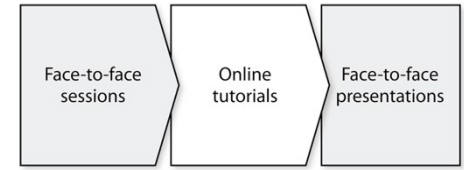
# Models of blended learning 2/5



- The first model focuses on learning in the classroom, supported by online exercises done outside of class. A common example of this model is the flipped classroom, where students independently watch podcasts or other online materials, followed by classroom sessions like tutorials or seminars for group learning based on those materials.

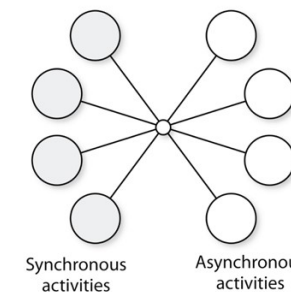


# Models of blended learning 3/5



- The second model is the blended block model, where a series of activities, or "blocks," combines face-to-face learning with online study. For example, a course for geographically distributed learners or working professionals may have limited opportunities for classroom-based learning and therefore begin with face-to-face sessions, followed by online study and collaboration through online tutorials, possibly followed by a face-to-face learning or group presentations.

# Models of blended learning 4/5



- The third model is fully online but may still be considered blended if it incorporates both synchronous learning (for example, online tutorials) and asynchronous activities (for example, discussion forums).

# Models of blended learning 5/5

| MODEL 1   | MODEL 2   | MODEL 3   |
|---|---|---|
| <b>Blended presentation and interaction</b>   | <b>Blended block</b>  | <b>Fully online</b>   |
| Activity-focused face-to-face sessions blended with online resources.<br><br>For example, the flipped curriculum model combines: <ul style="list-style-type: none"><li>• short lecture podcasts, online resources with</li><li>• face-to-face tutorial/seminars for interaction and presentation of group work.</li></ul> | Combination of: <ul style="list-style-type: none"><li>• intensive face-to-face sessions as one day or half days</li><li>• weekly online tutorial/seminars for activities and interaction</li><li>• online content and resources</li></ul> | Combination of: <ul style="list-style-type: none"><li>• short lecture podcasts with online resources and learning activities</li><li>• online tutorials (synchronous)</li><li>• interaction via online collaboration, discussion forums and/or group work</li></ul> |

Source: Hannon & Macken (2014)

# Self-assessment quizzes in the auditorium 1/3

- Kahoot!
- Mentimeter
- Wooclap
- Poll Everywhere

# Self-assessment quizzes in the auditorium 2/3

| Feature/Aspect              | Kahoot!                                   | Mentimeter                                | Wooclap   | Poll Everywhere   |
|-----------------------------|---|---|---|---|
| <b>Main Function</b>        | Quiz-based gamified learning              | Interactive presentations and surveys     | Interactive quizzes, polls, and surveys           | Audience polling and real-time feedback                     |
| <b>Interactivity Type</b>   | Competitive quizzes, polls                | Polls, quizzes, word clouds, Q&A sessions | Polls, quizzes, Q&A, surveys                      | Polls, Q&A, surveys   |
| <b>Audience Engagement</b>  | Real-time competition with leaderboards   | Real-time, audience-centric engagement    | Real-time feedback with various formats           | Real-time feedback with open-ended or multiple-choice polls |
| <b>Visuals &amp; Design</b> | Gamified, colorful, and playful interface | Clean, professional, highly customizable  | Simple yet customizable, focuses on functionality | Clean and simple with options to customize                  |
| <b>Question Types</b>       | Multiple-choice, true/false, polls        | Multiple-choice, word clouds, scales, Q&A | Multiple-choice, ranking, open questions          | Multiple-choice, ranking, open-ended                        |

# Self-assessment quizzes in the auditorium 3/3



| Feature/Aspect                   | Kahoot!  | Mentimeter   | Wooclap                                       | Poll Everywhere   |
|----------------------------------|--|--|---|---|
| <b>Participant Access</b>        | Mobile, web (Kahoot! app available)                      | Web-based, mobile access                             | Web-based, mobile access                      | Web-based, mobile apps for iOS and Android                                |
| <b>Reporting &amp; Analytics</b> | Limited to basic quiz results                            | In-depth analytics on responses and trends           | Real-time data collection and analytics       | Comprehensive analytics and response tracking                             |
| <b>Use Cases</b>                 | Classrooms, corporate training, events                   | Corporate presentations, education, events           | Education, corporate training, conferences    | Corporate, education, conferences   |
| <b>Pricing</b>                   | Free version available; paid plans for advanced features | Free version with paid plans for additional features | Free version with paid plans for more options | Free version available, paid plans for larger groups or advanced features |
| <b>Strengths</b>                 | Gamified learning, fun and engaging                      | Professional, flexible, and versatile                | Strong emphasis on learning and engagement    | Seamless integration with PowerPoint and other platforms                  |

# Examples of applications and how they are used in teaching



# Practice diaries in Moodle

## Diary

Add discussion topic

| Discussion   | Started by  | Last post   | Replies | Subscribe  |
|--|---|---|---------|--|
|  Traineeship feedback form |  Lisa Steel<br>27 Mar 2023   |  Lisa Steel<br>27 Mar 2023   | 0       | <input type="checkbox"/>    |
|  Self-reflection 2         |  Lisa Steel<br>27 Mar 2023  |  Lisa Steel<br>27 Mar 2023  | 0       | <input type="checkbox"/>    |
|  WEEK 16                 |  Lisa Steel<br>4 Mar 2023  |  Lisa Steel<br>4 Mar 2023  | 0       | <input type="checkbox"/>  |
|  WEEK 15                 |  Lisa Steel<br>26 Feb 2023 |  Lisa Steel<br>26 Feb 2023 | 0       | <input type="checkbox"/>  |
|  WEEK 14                 |  Lisa Steel<br>26 Feb 2023 |  Lisa Steel<br>26 Feb 2023 | 0       | <input type="checkbox"/>  |



# Chain assignment of articles on main course in land management

- The lecturer wants the students to gain an understanding wide range of science articles in land management.
- To ensure that students read the articles, the lecturer has designed a chain assignement that uses various Moodle tools and in-person meetings.

# Chain assignment of articles on main course in land management

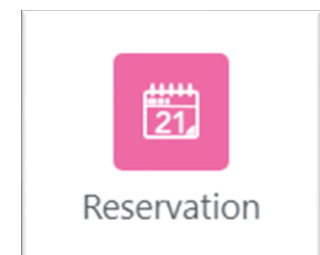
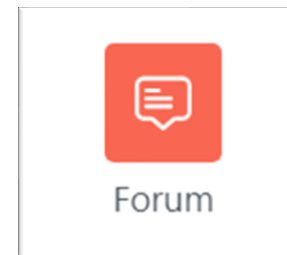
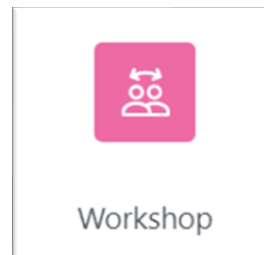
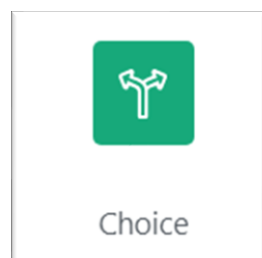
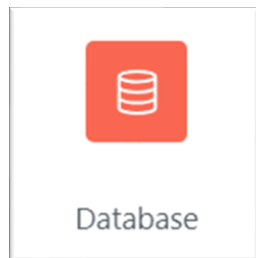
The **Database** activity allows to build a bank of record entries about any conceivable topic

The **Choice** activity allows to ask a question which learners can answer

The **Workshop** is a powerful peer assessment activity

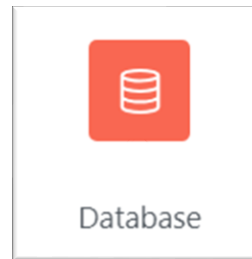
The **Forum** activity allows students and teachers to exchange ideas by posting comments

This **Reservation** allows to schedule laboratory sessions and exams



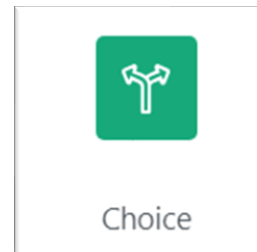
# Chain assignment of articles on main course in land management

Lecturer compiles a list of articles in Moodle, along with the article file.



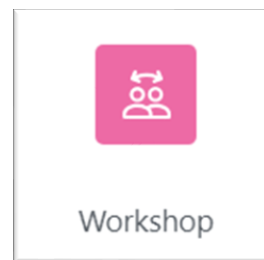
# Chain assignment of articles on main course in land management

Lecturer creates a survey in the choice tool, where each participant in the course selects one article from the article database to summarize. The instructor also provides a guideline for preparing the summary.



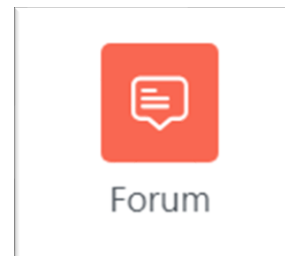
# Chain assignment of articles on main course in land management

Students post their summaries in the workshop tool, where peer assessment takes place. Peer assessment is the evaluation of students work by their peers based on predetermined evaluation criteria. Each student evaluates three summaries.



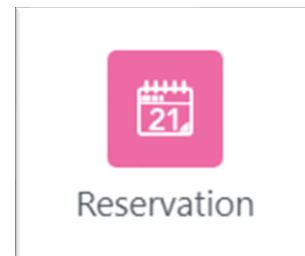
# Chain assignment of articles on main course in land management

Based on the evaluation in workshop tool, students make changes to their summaries if necessary and submit the summaries along with a presentation file to the forum tool, where all posts are visible to everyone.



# Chain assignment of articles on main course in land management

Then each student selects a presentation time using the Reservation tool.



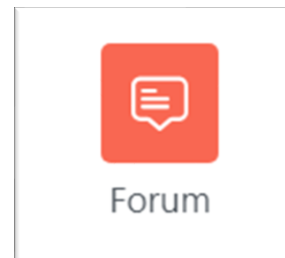
# Chain assignment of articles on main course in land management





# Chain assignment of articles on main course in land management

The final step of this task was for the student to summarize all the summaries and post it to the forum, where all posts are visible to everyone.



# Q and A discussion forum



FORUM

## Forum - Post your thoughts here after watching the film

[Forum](#) [Settings](#) [Advanced grading](#) [Subscriptions](#) [Reports](#) [More](#) ▾

Please watch a film and then answer the question in the forum.

*What thoughts and emotions did watching the film evoke?*

30 minutes after submitting your answers, you will have the opportunity to read the responses of your fellow course participants, as well as experts

[Add discussion topic](#)

**Discussion**

**Started by**

**Last post** ↓

**Replies**

**Subscribe**



Post your answer



Veljo Kabin  
26 Sep 2024



Veljo Kabin  
26 Sep 2024

0



# Analyzing tree cores

- The assignment is to analyze an actual tree core, which is sawed into disks from the forest. For example, in what year did the tree start growing and how old was the tree at the time of felling?

# Virtual 3D model - <https://smear.emu.ee/visuals/Stem3D/>



About SMEAR

About the Dendrology Lab

About the Project

This particular Virtual 3D model (V3D) was formulated by **Dmitrii Krasnov**, in collaboration with the support of **SMEAR Estonia** station and the **Dendrology Lab** at the **Estonian**



Mõisted

Üldinformatsioon

Aastarõnga lähivaade

Säsi

Aastarõngad

Tüve ehitus



# Analysis of statements related to climate issues presented in the interview

- **Assignment** - Please read the interview and identify six false claims related to climate issues. Try to think critically and justify why you consider these statements to be false.
- Once you have reflected on the claims and provided your explanations, confirm your statements and learn how experts comment on these false claims.

# Analysis of statements related to climate issues presented in the interview

**Ülesanne** - Alljärgnev tekst on [Eesti Ekspressis \(16.10.2008\)](#) ilmunud intervjuu E. Lippmaaga. Palun märgi tekstist kuus kliimatemaatikaga seotud vaeväidet! Mõnel juhul saab vaeväite esitada ühe lausega, mõnel juhul mitme lausega (st, et väide on kirja pandud mitme lause või isegi terve tekstilõiguna). Kui sa vajutad nupule „Kinnita“, ilmuvad sinu poolt valitud väidetele ekspertide selgitused.

## Akadeemik Lippmaa: globaalne soojenemine on jama!

Kliima praegu mitte ei soojene, vaid jaheneb. Inimeste poolt õhku paisatud süsinikdioksiid avaldab sellele protsessile üksnes tühist mõju, väidab akadeemik Endel Lippmaa.

Akadeemik Endel Lippmaa koogutab oma Nõmme kodus arvuti taga, pea kammitud, helepruun flüüs seljas ja kingad jalas. (Lippmaadel on väga uhke parkett.) Ta surub nina peaaegu vastu ekraani ja vuristab õhinal ingliskeelseid erialaseid termineid. “Ahhaa, vaadake nüüd. Siin ongi. *Holographic image...*” Akadeemik tonksab pastakaga monitori vasakusse serva. Sinna on modelleeritud suur kollane ke...  
sunspots. Päikeselaike pole, ainult!” Lippmaa on entusiastlik ja nõuab, et me solar

**Ekspertide selgitused valitud väidetele** - Ekspertteadmisi jagavad Birgit Viru (TÜ), Piia Post (TÜ) ning [Eesti Ekspress 09.10.2019 ilmunud artikli](#) raames Aarne Männik (TTÜ) ja Annela Anger-Kraavi (Cambridge'i ülikool).

# Analysis of statements related to climate issues presented in the interview

**Ülesanne** - Alljärgnev tekst on [Eesti Ekspressis \(16.10.2008\)](#) ilmunud intervjuu E. Lippmaaga. Palun märgi tekstist kuus kliimatemaatikaga seotud valesid! Mõnel juhul saab valesid esitada ühe lausega, mõnel juhul mitme lausega (st, et väide on kirja pandud mitme lause või isegi terve tekstilõiguna). Kui sa vajutad nupule „Kinnita“, ilmuvad sinu poolt valitud väidetele ekspertide selgitused.

## Akadeemik Lippmaa: globaalne soojenemine on jama!

Kliima praegu mitte ei soojene, vaid jaheneb. Inimeste poolt õhku paisatud süsinikdioksiid avaldab sellele protsessile üksnes tühist mõju, väidab akadeemik Endel Lippmaa.

Akadeemik Endel Lippmaa koogutab oma Nõmme kodus arvuti taga, pea kammitud, helepruun flüüs seljas ja kingad jalas. (Lippmaadel on väga uhke parkett.) Ta surub nina peaaegu vastu ekraani ja vuristab õhinal ingliskeelseid erialaseid termineid. “Ahhaa, vaadake nüüd. Siin ongi. *Holographic image...*” Akadeemik tonksab pastakaga monitori vasakusse serva. Sinna on modelleeritud suur kollane ke...  
sunsports. Päikeselaike pole, ainult!” Lippmaa on entusiastlik ja nüüd taie solar

**Ekspertide selgitused valitud väidetele** - Ekspertteadmisi jagavad Birgit Viru (TÜ), Piia Post (TÜ) ning [Eesti Ekspress 09.10.2019 ilmunud artikli](#) raames Aarne Männik (TTÜ) ja Annela Anger-Kraavi (Cambridge'i ülikool).

## Analysis of statements related to climate issues presented in the interview

The climate is not currently warming; it is actually cooling. The carbon dioxide released by humans has only a negligible effect on this process.



# Analysis of statements related to climate issues presented in the interview

**Ülesanne** - Alljärgnev tekst on [Eesti Ekspressis \(16.10.2008\)](#) ilmunud intervjuu E. Lippmaaga. Palun märgi tekstist kuus kliimatemaatikaga seotud valesaidet! Mõnel juhul saab valesaite esitada ühe lausega, mõnel juhul mitme lausega (st, et väide on kirja pandud mitme lause või isegi terve tekstilõiguna). Kui sa vajutad nupule „Kinnita“, ilmuvad sinu poolt valitud väidetele ekspertide selgitused.

## Akadeemik Lippmaa: globaalne soojenemine on jama!

Kliima praegu mitte ei soojene, vaid jaheneb. Inimeste poolt õhku paisatud süsinikdioksiid avaldab sellele protsessile üksnes tühist mõju, väidab akadeemik Endel Lippmaa.

Akadeemik Endel Lippmaa koogutab oma Nõmme kodus arvuti taga, pea kammitud, helepruun fliis seljas ja kingad jalas. (Lippmaadel on väga uhke parkett.) Ta surub nina peaaegu vastu ekraani ja vuristab õhinal ingliskeelseid erialaseid termineid. “Ahhaa, vaadake nüüd. Siin ongi. *Holographic image...*” Akadeemik tonksab pastakaga monitori vasakusse serva. Sinna on modelleeritud suur kollane k...  
sunspots. Päikeselaike pole, ainult!” Lippmaa on entus...

Alusta uuesti

Kinnita

**Ekspertide selgitused valitud väidetele** - Ekspertteadmisi jagavad Birgit Viru (TÜ), Piia Post (TÜ) ning [Eesti Ekspress 09.10.2019 ilmunud artikli](#) raames Aarne Männik (TTÜ) ja Annela Anger-Kraavi (Cambridge'i ülikool).

Inimeste poolt õhku paisatud süsinikdioksiid avaldab sellele protsessile üksnes tühist mõju, väidab akadeemik Endel Lippmaa.

**Vastab Birgit Viru:** Vastupidi, juba üle pooleteise sajandi on selline inimtegevus, mille tagajärjeks on kasvuhoonegaaside emissioonid, põhjustanud kliimasoojenemist. Teadlased on seda ka põhjalikult uurinud ning jõudnud arusaamani, et 99.9999% tõenäosusega on praegune kliimasoojenemine inimtegevuse tagajärg (Santer jt, 2019). Seda kinnitab ka see, et atmosfääri CO<sub>2</sub> kontsentratsioon on kõrgem kui kunagi varem ning tõus on olnud hüppeline just peale tööstusrevolutsiooni (joonis 1) ning inimtekkeliste kasvuhoonegaaside emissioonide suurenemise tõttu. Lisaks kui võrrelda looduslikku ja inimtekkelist süsihappegaasi, siis tuleb välja, et asjalood pole sugugi nii nagu Lippmaa väitis. Teadlased on leidnud, et aastased globaalsed kasvuhoonegaaside emissioonid varieeruvad vahemikus 54.33 – 75.50 Gt CO<sub>2</sub>-eq \*, millest looduslikud emissioonid jäävad vahemikku

# Analysis of statements related to climate issues presented in the interview

On the contrary, for over a century and a half, human activities that result in greenhouse gas emissions have caused climate warming. Scientists have studied this extensively and have come to understand that there is a 99.9999% probability that the current climate warming is a result of human activities (Santer et al., 2019).

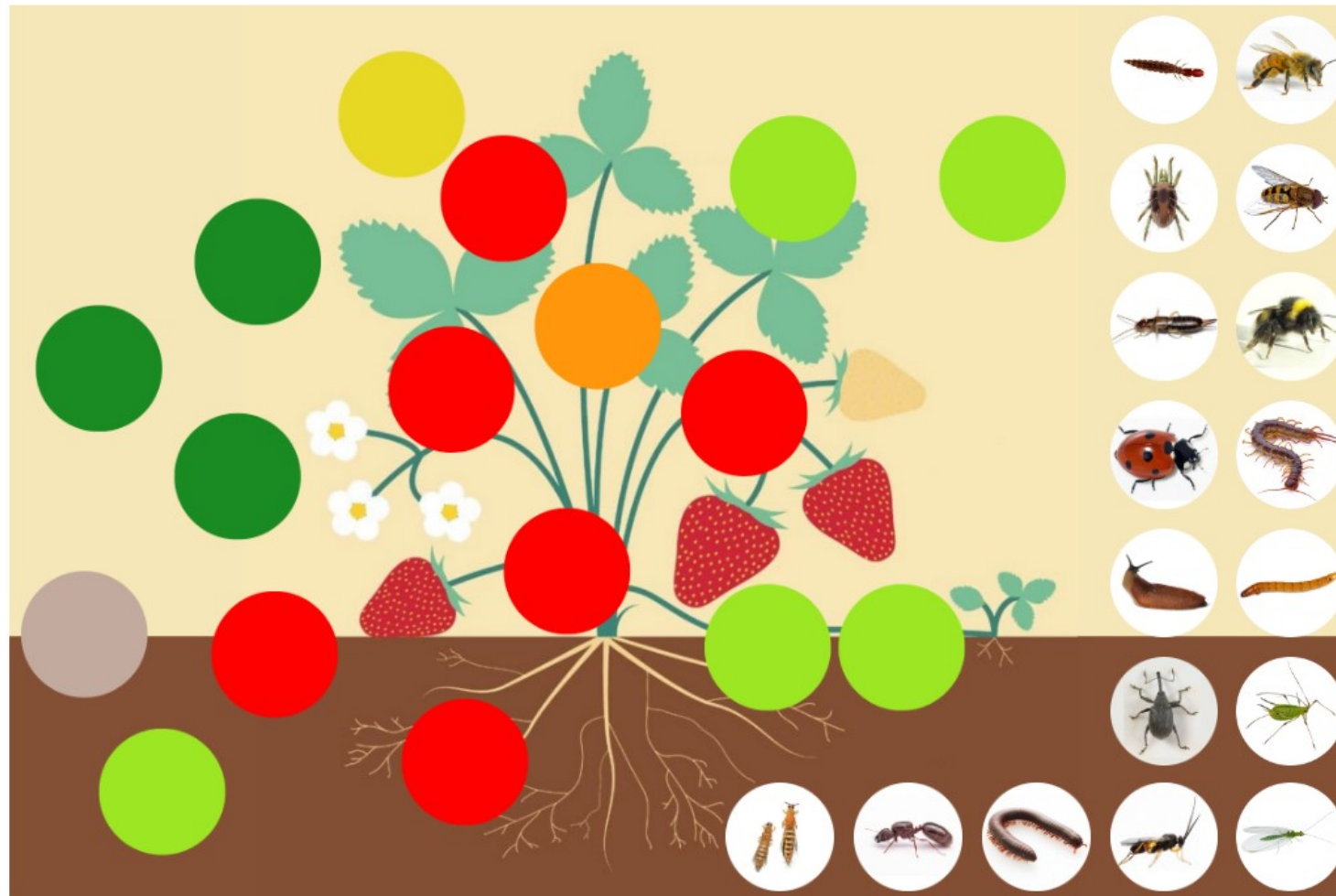
# Mesofauna on the strawberry field 1/2

The lives of the animals shown in the pictures are closely connected to the strawberry. Drag them to the plant where you might find these animals on the strawberry plant.

Hint: pay attention to the colors that might group these animals.

# Mesofauna on the strawberry field 2/2

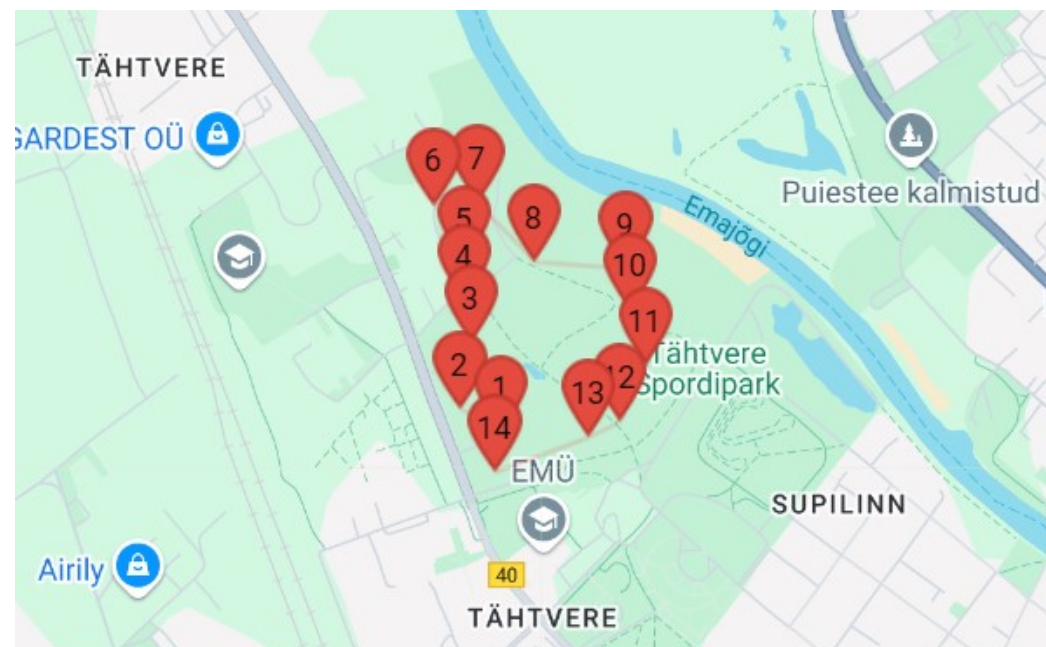
Maasikas



Kontrolli

# Discovery trail

- The digital outdoor learning tool **Discovery trail** is an application that works in a mobile device's web browser and allows the creation of interactive outdoor trails that anyone can follow.
- All you need is a mobile device and some initiative.
- The application enables you to link specific tasks and trail points to the most relevant topics, thereby enhancing learning through real-life experiences.





Thank you!