

Human-forest-climate in balance?

<p>Target group</p>	<p>lower cycle middle school high school</p>
<p>Number of participants</p>	<p>6 - 27</p>
<p>Duration (min)</p>	<p>30 min.</p>
<p>Competencies</p>	<ul style="list-style-type: none"> • Recognising the natural limits of the Earth system using the example of natural resources and the climate • Explain the dimensions of sustainability • Reflect on one's own consumption and lifestyle habits and evaluate forms of non-sustainable development. • Develop viable and sustainable approaches to solutions and actively participate in sustainable development
<p>Activity description</p>	<p>Everyone is talking about "climate change" and "sustainability". But what is actually behind these terms and what do we and the forest have to do with them?</p> <p>The participants (P) are divided into three groups. Group 1 represents natural resources (including the forest), group 2 represents human beings and group 3 represents the climate system or atmosphere.</p> <p>Each group collects 10 arm-length sticks and a total of 10 cones and lines up in a given equilateral triangle. The paths between the corners should be free of tripping hazards.</p> <p>Course of the game: A kind of relay race is played in which each path represents a process step of the human-forest-climate system.</p> <p>Distances in all rounds</p> <ol style="list-style-type: none"> 1) Group 1 + Group 3: The forest (Group 1) binds carbon dioxide from the air, which is why it takes sticks from the climate system (Group 3) one by one. The forest grows. 2) Group 2 + Group 1: Human (Group 2) uses the forest (Group 1) by taking wood from the forest. The number of sticks stands for the current resource demand of human beings and is taken one by one.

- 3) Group 3 + Group 2: The carbon taken from the forest as wood re-enters the climate system through combustion and decomposition. The climate (group 3) therefore takes separate sticks from the human beings (group 2) one by one.

Game rounds

Round 1 - Sustainable use of renewable resources

Initial situation: G1 = 10 sticks, G2 = 10 sticks, G3 = 10 sticks

Group 1: takes 1 stick per run

Group 2: takes 1 stick per run

Group 3: takes 1 stick from run

Result: The cycle is in balance and can be continued indefinitely.

Only as much CO₂ is released into the atmosphere as is bound by the forest.

Round 2 - Unsustainable use of renewable resources

Initial situation: G1 = 10 sticks, G2 = 10 sticks, G3 = 10 sticks

Group 1: takes 1 stick per run

Group 2: takes 2 sticks per run

Group 3: takes 2 sticks per run

Result: The cycle comes to a standstill after 10 turns, because the forest cannot grow at the rate that humans consume it.

Round 3 - Use of renewable resources with additional use of fossil resources

Initial situation: G1 = 10 sticks / 10 cones, G2 = 10 sticks, G3 = 10 sticks

Group 1: takes 1 stick per run

Group 2: takes 1 stick and 1 cone per run

Group 3: takes 1 stick and 1 cone per run

Result: The wood cycle remains sustainable for 10 turns.

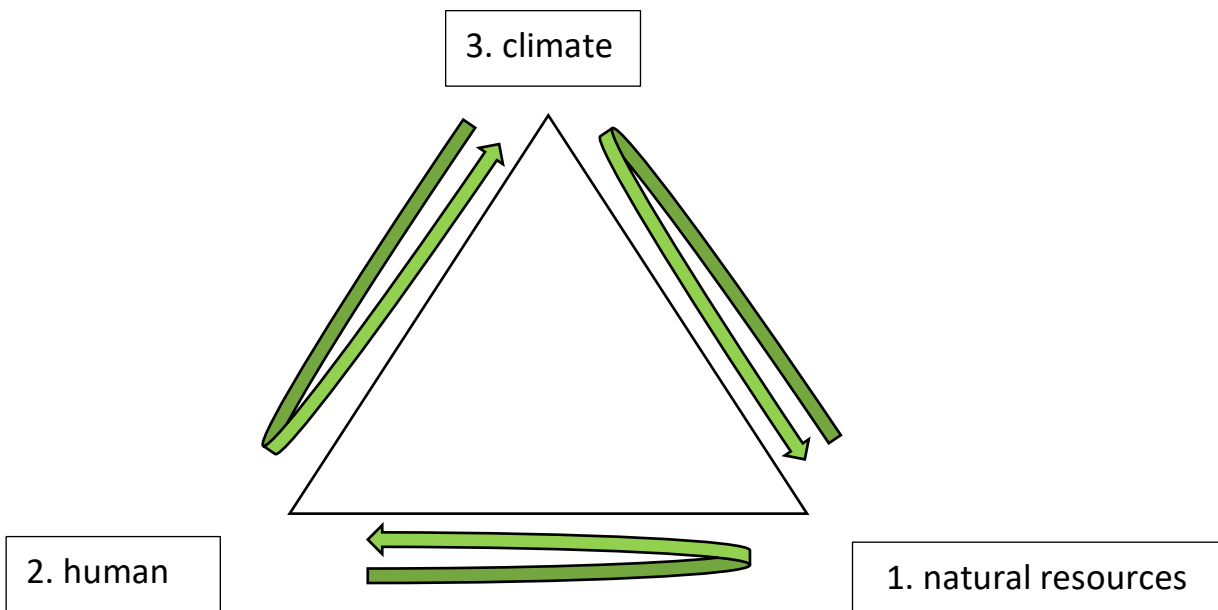
Nevertheless, additional CO₂ accumulates in the atmosphere because the use of fossil energy sources emits more CO₂ than the forest can bind. If you continue playing this round after 10 turns, it passes over to round 2 again after all fossil resources have been used.

After each round of the game, the sticks are counted in the respective groups and the results are discussed.

At the end of the game, it can be discussed what options there are for action to compensate for the increased demand for resources (development of new, renewable resources), to reduce it (lowering the standard of living, technological progress, tax regulations) and to bind CO₂ in the system in the long term (substitution, recycling).

Afterwards, the sticks and cones in the three groups are counted again and compared. The high demand for resources and the use of fossil resources are named as the cause of the imbalance that has

	<p>arisen in the climate system and the anthropogenic greenhouse effect and climate change are explained as a direct effect.</p> <p>Finally, the game can be modified together by developing sustainable options for action against climate change. Examples of this could be the expanded use of renewable instead of fossil resources, taxation of CO₂ and other greenhouse gases, sustainable handling or consistent recycling of raw materials through approaches such as <i>Cradle to Cradle</i> and other environmental and climate protection measures.</p>
<p>Deepening</p>	<ul style="list-style-type: none"> • CO₂ storage capacity of the forest: How much CO₂ is in a tree? (CO₂ measuring tape); how much CO₂ does a person produce in Germany or on average worldwide and how many trees are needed to bind this amount? • Dimensions of sustainability: integration (economic, social, ecological & political), permanence (balance over time), justice (over generations or globally), subjectivity (personal concern & "guilt"), dependency (interrelationships in the anthroposphere & biosphere)



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