



Smithsonian

Science Education Center

Network for Socio-Scientific Thinking Contextualization for Youth

Note: The contextualization below is just one example what these terms could mean for youth; it does not represent the experiences of all.

Key Terms		Context
Term	Definition	What does this mean for . . . /Why is this term important to . . . ?
Complexity Theory	Complexity theory tries to explain and understand how and why interactions between objects and systems develop and change, as well as the influence these relationships have on objects and systems which initially appear to have no connection to the primary relationship being observed.	Complexity theory helps us understand the larger picture of how we (humans, nature, the planet) are all connected. It also helps us understand the different impacts or consequences difference activities can have that we may not have thought about before. This theory is essential in helping people to work on global issues in a meaningful, productive way instead of taking actions that seem good but that end up harming something unintentionally.

Glossary compiled by Smithsonian Science Education Center's Network for Socio-Scientific Thinking (NESST)

Suggested Citation: "Insert Term Cited"(2023). *Network for Socio-Scientific Thinking Glossary: Contextualization for Youth*.

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Emergence	<p>Emergence refers to the phenomena of a new or unique behavior or dynamic arising from the interaction of two objects or systems which does not occur otherwise. Emergence is surprising and complex because this new characteristic is not present in the individual object/systems separately.</p> <p><i>Examples: cultural gestures like the handshake, wicked problems like climate change, or questions of existence, like human consciousness</i></p>	<p>Many of the issues we encounter in the world are emergent. They happen because of two things interacting in unforeseen ways. Studying emergence can help us figure out what might change as a result of our actions, or what in our systems we might not want to change in order to preserve an emergent property.</p>
Global Citizenship Education (GCED)	<p>GCED frames learning in a way to encourage a sense of global and local belonging and awareness of the world's complexity and interconnectedness and collective, inclusive action-taking for a just, peaceful, and sustainable future.</p>	<p>Developing new perspectives and connecting with the world and its complexity allows you to see areas your own community or system could improve. Thinking about yourself as a global citizen can also help you think about or imagine all of the different places and communities you belong to, who you can ask for help, and who you can help out in return.</p>

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Scientific Literacy	<p>Scientific literacy means having a solid grasp of scientific ideas and how they apply to real-life situations. It involves understanding scientific facts, thinking critically about scientific claims, and using evidence to make informed choices. Being scientifically literate helps you appreciate science and make sense of the world around you.</p> <p><i>Examples: Using data to make informed choices about health/environmental/technological decisions</i></p>	<p>Scientific literacy to youth means acquiring the knowledge and skills necessary to understand and appreciate scientific concepts. It empowers them to think critically, ask questions, and evaluate information. Scientific literacy enables young individuals to engage with scientific issues, make informed decisions, and actively participate in shaping a technologically advanced world.</p>
Social Justice	<p>Social justice means ensuring fairness and equality for all members of society. It involves addressing and correcting systemic inequalities and discrimination based on factors like race, gender, socioeconomic status, and more. Social justice aims to create a society where everyone has equal access to opportunities, resources, and rights, promoting a just and inclusive community.</p> <p><i>Examples: healthcare equity, criminal justice reform, access to education</i></p>	<p>Social justice to youth means fighting for fairness and equality in society, challenging injustice, and amplifying marginalized voices. It involves advocating for human rights, dismantling oppressive systems, promoting inclusivity and diversity, and actively engaging in movements that strive to create a better and more equitable world for all.</p>

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Socio-scientific Issues	<p>Socio-scientific issues (SSI) are topics which bring science together with other fields, often to respond to a moral or ethical dilemma. These issues require an understanding of science/scientific skills in order to engage with them in an informed way and better support community decision-making and societal values around the topic.</p> <p><i>Examples: climate change, genetic engineering, animal testing, and vaccination policies</i></p>	<p>Youth should know about socio-scientific issues as they provide a foundation for looking at the societal problems people engage with in their everyday life. This field will help them understand the types of thinking and skills they might need to build to make sense of these issues and take action on them.</p>
Student Action-taking	<p>Student action-taking refers to the ability of students to intentionally generate action for themselves and their community based on what they have experienced and learned. Action-taking increases students' sense of agency, and continued action-taking helps students move from simply executing actions to putting considered actions into place.</p> <p><i>Examples of places for student action-taking: school projects, volunteering, extra-curriculars, personal goal-setting, convincing family members to make alternative lifestyle choices</i></p>	<p>Student action taking allows you to develop skills and practice making changes you desire in your community that have a positive impact. It makes you realize the power that young people, including yourself, have to create change. By taking action, you develop habits related to leadership: taking the initiative yourself as you try to make changes in your community.</p>

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Transdisciplinary Learning	Transdisciplinary learning utilizes real-life contexts, situations, and problems as the entry point for learning, and asks students to draw on tools, skills, and ways of knowing from multiple disciplines and cultures. In this way, students learn how to transfer skills and knowledge systems to any situation they encounter, regardless of how that topic is framed in traditional education. <i>Examples: Climate Change Education, Social Justice Education</i>	Transdisciplinary learning helps ground education to real-life situations and builds communication and collaboration skills so it will become easier for different people to come together and achieve common goals.
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Want to know more? Find out what each term means in the context of the following roles:

[NESST Members](#)

[Researchers](#)

[Educators](#)

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