



Defining Sustainability

Background: This lesson is based on the concepts of sustainability. Sustainability is commonly defined as: “Meeting the needs of current generations without compromising the needs of future generations.” In order to determine if something is sustainable, three elements must be considered: economics, environment and social equity. These are known as the “three Es.” Economic pertains to money. Some examples include jobs, cost, human hours, etc. Environment pertains to the natural and built world. Some examples include air quality, water quality, open space, etc. Social equity pertains to people. Examples include health care, safety, culture, art, religion, etc. See the Defining Sustainability-Teacher Information Sheet for more information.

Goal: Students will develop their own definitions of sustainability.

Objectives: Students will ...

- Brainstorm and prioritize long-term goals
- Draw conclusions
- Identify the concepts of sustainability
- Write concise definitions

Materials (for a class of 32 working in groups of 4):

- 3 pieces of easel paper or dry erase boards
- 8 markers
- 8 rolls of masking tape
- 8 - 12" x 18" pieces of construction paper
- 8 large brown envelopes
- 8 copies of Defining Sustainability-Student Definitions (stapled)
- 16 red 3 x 5 plain index cards
- 16 blue 3 x 5 plain index cards
- 16 green 3 x 5 plain index cards
- 16 white 3 x 5 plain index cards

Time Required: 45-60 minute class period

Standards Met: LA7, LA11, LA12, S7

Procedure:

PREP

- Prepare the following 8 sets of cards. Each set should contain two cards of each of the colors and two white cards. Each of the color cards should have written on them one of the words listed below on the front of the card. On the back of each of the cards, write the number of the set (1-8).
 - Set 1 - Red cards (democracy, mass transit), Blue cards (National Parks, polar bears), Green cards (international trade, pensions)
 - Set 2 - Red cards (religious freedom, libraries), Blue cards (glaciers, rainforests), Green cards (employment, technology)
 - Set 3 - Red cards (freedom of speech, museums), Blue cards (biodiversity, rainbows), Green cards (balanced budget, industrial growth)
 - Set 4 - Red cards (internet access, women's rights), Blue cards (sunsets, green space), Green cards (capitalism, labor unions)
 - Set 5 - Red cards (public education, family values), Blue cards (potable water, coral reefs), Green cards (fiscal responsibility, innovation)
 - Set 6 - Red cards (care for the elderly, cultural diversity), Blue cards (air conditioning, organic food), Green cards (social security, home mortgages)
 - Set 7 - Red cards (Constitution of the United States, security), Blue cards (renewable energy, zoos), Green cards (honesty, acceptable standard of living)
 - Set 8 - Red cards (charitable organizations, compassion), Blue cards (African wildlife, agricultural land), Green cards (affordable healthcare, global mobility)
- Number the brown envelopes from 1 to 8.
- Place the color cards for each set plus two blank white cards into the brown envelopes with the corresponding numbers.
- Run off 8 copies of Defining Sustainability-Student Definitions.
- Place one set of Defining Sustainability-Student Definitions into each of the envelopes.
- Place one marker and one roll of tape into each of the envelopes.
- Post three large pieces of easel paper in the front of the room and label one red, the second one blue, and the third one green.

IN CLASS

- Have the students form groups of 4.
- Pass out one envelope to each of the groups.
- Have the students open their envelope and spread the cards out in front of them.
- Explain to the students that what is written on the colored cards are concepts, things, places, ideas, etc. that exist in the world today (perhaps not within the United States).
- Have the students select one card from each color that contains something that they would like to see extend beyond their lifetime. Note: If the students do not understand the meaning of some of the terms, have them look up the definition on the Defining Sustainability-Student Definitions.

- Explain that in some cases, they may want to see both items within a certain color extend beyond their lifetime, but for this activity they may select only one from each color. Note: The exception to this rule is if they do not want to see either of the items within a certain color extend beyond their lifetime. In that case, they do not have to select one from each color, but they will have to justify their reason later to the rest of the class.
- Have each group place a small piece of masking tape on the top of each of the cards they have selected (should be three) and send one student to the front of the room to tape their cards onto the easel paper that corresponds with the color of the cards.
- When all cards have been posted, have the students discuss within their groups what the different colors represent.
- Have each group now determine two new things that they would like to see extend beyond their lifetime (they cannot be any of the ideas that are listed on the front sheets, or on their remaining cards, and should be able to be classified under two different colors).
- Using their marker, have them print their two new ideas on their blank white index cards (one per card) along with their group number (both on the front of the card).
- Have the groups decide which color each of their new cards will best fit under.
- Have the students add tape to each of the cards.
- Have one student go to the front of the room and tape their cards under the category that they believe it best fits.
- Ask each group to explain their decision on where they placed their two cards.
- Ask the students to identify an appropriate heading for each of the three colors.
- Paraphrase the heading if necessary so that the class has identified the “three Es” of sustainability: environment, social equity and economics.
- If it has not come up with the students yet, discuss the possibility and reasoning behind the placing of a card in more than one category.
- Now have students work in their groups of four to develop a general definition of sustainability in their own words. Be sure to remind them to keep in mind that the 3 Es each play a part in sustainability and should be included in some way in their definition.
- Ask students to write their definitions on a blank piece of paper as largely as possible. The sheets will be put up around the room when everyone is finished.
- Share the definitions with the group.
- Display the definitions where the students can refer back to them.
- Have the students return the envelope with the marker, tape and Defining Sustainability-Student Definitions to the designated clean-up area.

Assessment:

- Participation in class activity
- Completed definition of sustainability



Defining Sustainability-Student Definitions

Acceptable standard of living varies from nation to nation, and international comparisons are sometimes made by analyzing the total amount of goods and services produced by a country (also called Gross National Product), average income each person earns (also called per capita income), or any number of other indicators from life expectancy to clean water.

Balanced budget in the public sector is achieved when the government has enough fiscal discipline to be able to equate the revenues (money coming in) with expenditures (money going out) over the business cycles. In other words, a government's budget is balanced if its income is equal to its expenditures.

Biodiversity relates to the number and variety of organisms found within a specified geographic region. It is also used to describe the variability among living organisms on the Earth, including the variability within and between species and within and between ecosystems.

Capitalism is an economic system in which the means of production and distribution are privately or corporately owned, and development is proportionate to the accumulation and reinvestment of profits gained in a free market.

Charitable organization is a tax exempt body that provides goods or services for society that are not addressed or partially-addressed by government, including such broad topics such as services for homeless people, protection of the environment, disaster relief, or religious efforts. Since these organizations do not operate to generate profits and offer services to society similar to a government agency, but are not part of government, they are sometimes called non-profits, not-for-profits, or non-governmental organizations (NGOs).

Compassion is the humane quality of understanding the suffering of others and wanting to do something about it.

Constitution of the United States of America is the supreme law of the United States. It provides the framework for the organization of the United States Government. The document defines the three main branches of the government: The legislative branch led by Congress, an executive branch led by the President, and a judicial branch headed by the Supreme Court. Besides providing for the organization of these branches, the Constitution outlines which powers each branch may exercise. It also reserves numerous rights for the individual states, thereby establishing the United States' federal system of government. It is the shortest and oldest written constitution of any major sovereign state.

Cultural diversity is the concept of many sub-cultures and different value systems in a society.

Democracy is a form of government in which the supreme power is held completely by the people under a free electoral system. Even though there is no universally accepted definition of 'democracy', there are two principles that any definition of democracy includes. The first principle is that all members of the society have equal access to power and the second is that all members enjoy universally recognized freedoms and liberties.

Fiscal responsibility is the managing of money wisely, which includes wisely managing resources, preparing for the future, and avoiding debt.

Global mobility is the freedom of individuals to move from country to country with minimal restrictions.

Green space is a vegetated public area in an urban setting that provides an open environment.

Home mortgage is the pledging of a property (for example, a house) to a lender (for example, a bank) as a security for a mortgage loan. The lender of the mortgage takes a share of the property which gradually shrinks as the property owner pays off the mortgage. Once the mortgage is entirely paid, the lender's share in the property is zero. If the owner is unable to pay the mortgage, the lender may take a larger share of the property, or the entire property, and sell it to pay back the loan.

Innovation means a new way of doing something. It may refer to incremental, radical, and revolutionary changes in thinking, products, processes, or organizations.

International trade is the exchange of goods and services across borders of different countries.

Labor union is an organization of wage earners formed for the purpose of serving the members' interests with respect to wages and working conditions.

Mass transit is passenger transport systems that transport members of the general public based on published schedules or at fixed intervals, usually charging set fares,

in continuously shared vehicles. This includes rail and bus services as well as airline services and ferries.

Organic foods are produced according to certain production standards, meaning they are grown without the use of conventional pesticides, artificial fertilizers, human waste, or sewage sludge and that they were processed without ionizing radiation or food additives. Livestock are reared without the routine use of antibiotics and without the use of growth hormones. In most countries, produce that is genetically modified is not considered organic.

Pension is a regular payment made by the state or a former employer to a person who has retired or to a widowed or disabled person.

Potable water is simply water that is safe to drink. Potable water is free from pollution, harmful organisms and impurities.

Renewable energy is energy generated from natural resources—such as sunlight, wind, rain, tides and geothermal heat—which are renewable (naturally replenished).

Social Security is a government program that provides economic assistance to persons faced with unemployment, disability, or agedness, financed by assessment of employers and employees.

Technology is the application of science, especially to industrial or commercial objectives. It also refers to the electronic or digital products and systems considered as a group: a store specializing in office technology.



Defining Sustainability – Teacher Information Sheet

Below is a compilation of definitions for sustainability taken from the website <http://www.utoronto.ca/envstudy/sustainabletoronto/whoweare.htm#3>

1. “Urban sustainability involves the complex and difficult task of finding balances among social, economic and environmental pluses and minuses, between short- and long-term considerations, and between the immediate interests of a part of the population and the more diffuse interests of everyone” (Government of Canada, 1996).
2. “Meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Bruntland Report, 1987). Needs are defined as basic human needs including food, shelter, clean water and a healthy environment. Fair and efficient use of resources is necessary to meet basic human needs.
3. To sustain is to support, keep alive, to endure, to uphold the validity of (Oxford Dictionary, 1995) e.g., our environment and ourselves.
4. “The impacts of unsustainable activity in an urban centre is not usually the result of a direct, large scale assault on the environment, but rather is the cumulative effect of people going about their everyday lives, traveling to work and shopping, building and heating homes and offices: what many view to be the necessities of daily urban life. The challenge for us in the GTA is to redefine the necessities of daily urban life in sustainable terms” (Task Force on Urban Development and Commerce for the Ontario Round Table, 1991).
5. Genuine Progress Index (GPI) approach (<http://www.gpiatlantic.org>):
Development that is “sustainable” requires that:
 - we do not consume more resources than the planet can provide, and that we do not produce more waste than the planet can assimilate;
 - we live in such a way that the next generation will not be worse off than we are; and

- we do not consume resources at the expense of others' basic survival and livelihood.

In other words, "sustainable development" requires that we live responsibly and with awareness, so as not to deplete our natural wealth and leave a poorer world for our children and others to inherit.

6. Sustainability is: Progressive social betterment without growing beyond ecological carrying capacity. – Herman Daly.
7. Living equitably within the means of nature. – Ecological Footprint
8. Rejoice in the beauty and wonder of our land, our skies, our waters and life in all its diversity. Let us work to nurture this heritage and protect and promote it for the survival of future generations. Let us work to make and build cities and communities that are socially just, ecologically sustainable, politically participatory, economically productive and culturally vibrant. Let us strengthen our work to realize this vision of better cities and communities through advocacy, networking information, capacity building and resource mobilization. (Moving Forward Towards Our Sustainable Cities, April 1997.)
9. "Socially just, ecologically sustainable, politically participatory, economically productive and culturally vibrant." From Our Cities, Our Homes held in Kuantan, Malaysia, 1995
10. Given the resource restrictions, an efficient, transparent and participatory decision-making process by the various levels of government in partnership with private sector companies, non-governmental agencies and community-based organizations is crucial to direct the development of society and economy in a democratically decided direction and solve urban problems (United Nations Development Programme (UNDP), The Urban Governance Initiative's Virtual Policy Studio (TUGI-VPS)).
11. And, a definition crafted by a Roundtable workgroup without using "the big three" – equity, economy and environment – and not confined to a sweet, neat sentence: A definition of Sustainability should include:
 - planning and managing the present and the future;
 - being efficient and responsible, with awareness of earth's carrying capacity and full-cost of action and inaction;
 - achievable, enduring, progressive, vibrant goals,
 - systems which are just, equitable, transparent and participatory;
 - additional words to incorporate: synergistic, integrative, vision, risk, quality, dynamic, integrity, long-term, balance, strategic.
12. The 1992 Earth Summit in Rio de Janeiro popularized the phrase sustainable development even as the definition of the term remained vague. The many definitions and frameworks that now exist share a number of basic principles including:
 - Concern for the well-being of future generations;

- awareness of the multi-dimensional impacts of any decision (broadly categorized as economic, environmental, social); and,
- the need for balance among the different dimensions across sectors (e.g. mining, manufacturing, transportation), themes (climate change, community cohesion, natural resource management) and scale (local, regional, national, international).

The elusive goal of sustainable development, or sustainability as it is also called, is to make decisions and carry out programs and projects in a manner that maximizes benefits to the natural environment and humans and their cultures and communities, while maintaining or enhancing financial viability.

From "The Sustainability Report – A Review of Corporate Sustainability Reporting" prepared by Mary MacDonald and Kim Peters for the Sustainability Reporting Program 2001.