



# EDUCATION FOR SUSTAINABILITY Efs STANDARDS & PERFORMANCE INDICATORS

WITH ENDURING UNDERSTANDINGS

*Curated and Edited by Jaimie P. Cloud*

## THE 9 CORE Efs STANDARDS

**Cultural Preservation & Transformation**

**Responsible Local & Global Citizenship**

**The Dynamics of Systems & Change**

**Sustainable Economics**

**Healthy Commons**

**Natural Laws & Ecological Principles**

**Inventing & Affecting The Future**

**Multiple Perspectives**

**Strong Sense Of Place**



## EFS ENDURING UNDERSTANDINGS

### 1. A HEALTHY AND SUSTAINABLE FUTURE IS POSSIBLE

We can learn how to live well within the means of nature. This viewpoint inspires and motivates people to act.

### 2. WE ARE ALL IN THIS TOGETHER

We are interdependent on each other and on the natural systems. In this context, self interests are best served through mutually beneficial relationships.

### 3. HEALTHY SYSTEMS HAVE LIMITS

Rather than exceeding or ignoring the limits, tap the power of limits. Constraints drive creativity.

### 4. RECOGNIZE AND PROTECT THE COMMONS

The Commons are the creations of nature and society that we inherit jointly and freely, and hold in trust for future generations. We all depend on them and we are all responsible for them. Who is tending them at the moment?

### 5. RECONCILE INDIVIDUAL RIGHTS WITH COLLECTIVE RESPONSIBILITIES

Responsible and ethical participation and leadership are required in order to make the changes we need to make. We must reconcile the conflicts that exist between our individual rights and our responsibilities as citizens.

### 6. DIVERSITY MAKES OUR LIVES POSSIBLE

Diversity is required to support rich complex systems (like us), to build strength and to develop resilience in living systems. Biological diversity, cultural, gender, political and intergenerational diversity all serve this purpose.

### 7. CREATE CHANGE AT THE SOURCE NOT THE SYMPTOM

Distinguish problems from symptoms and goals from indicators. Identify the most upstream problem you can address within your sphere of influence, and then solve more than one problem at a time while minimizing the creation of new problems.

### 8. THINK 1000 YEARS

Envision the kind of future we want and start working towards it. We do not have to sacrifice our children's future to meet our needs. In fact, that is irresponsible and just plain wrong.

### 9. READ THE FEEDBACK

We need to pay attention to the results of our behavior on the systems upon which we depend. How will we measure success? Sometimes the results of our behavior are inconsistent with our values and our desired outcomes. If we keep our eyes on the feedback, we can adjust our thinking and behavior before we cross detrimental thresholds.

### 10. IT ALL BEGINS WITH A CHANGE IN THINKING

Thinking drives behavior and behavior causes results. The significant problems we face cannot be solved with the same level of thinking we used to create them. (Einstein) Think systems, cycles and out of the box.

### 11. LIVE BY THE NATURAL LAWS

We must operate within the natural laws and principles rather than attempt to overcome them. It is non-negotiable.

### 12. WE ARE ALL RESPONSIBLE

Everything we do and everything we don't do makes a difference.

## KNOWLEDGE & ACTION

### A. CULTURAL PRESERVATION AND TRANSFORMATION

The preservation of cultural histories and heritages, and the transformation of cultural identities and practices contribute to sustainable communities. Students will develop the ability to discern with others what to preserve and what to change in order for future generations to thrive.

### B. RESPONSIBLE LOCAL/GLOBAL CITIZENSHIP

The rights, responsibilities and actions associated with leadership and participation toward healthy and sustainable communities. Students will know and understand these rights and responsibilities and assume their roles of leadership and participation.

### C. THE DYNAMICS OF SYSTEMS & CHANGE

A system is made up of two or more parts in a dynamic relationship that forms a whole whose elements 'hang together' and change because they continually affect each other over time. Students will know and understand the dynamic nature of complex systems and change over time. They will be able to apply the tools and concepts of system dynamics and systems thinking in their present lives, and to inform the choices that will affect our future.

### D. SUSTAINABLE ECONOMICS

The evolving theories and practices of economics and the shift towards integrating our economic, natural and social systems, to support and maintain life on the planet. Students will know and understand 21st century economic practices and will produce and consume in ways that contribute to the health of the financial, social and natural capital.

### E. HEALTHY COMMONS

Healthy Commons are that upon which we all depend and for which we are all responsible (i.e., air, trust, biodiversity, climate regulation, our collective future, water, libraries, public health, heritage sites, top soil, etc.). Students will be able to recognize and value the vital importance of the Commons in our lives and for our future. They will assume the rights, responsibilities and actions to care for the Commons.

### F. NATURAL LAWS AND ECOLOGICAL PRINCIPLES

The laws of nature and science principles of sustainability. Students will see themselves as interdependent with each other, all living things and natural systems. They will be able to put their knowledge and understanding to use in the service of their lives, their communities and the places in which they live.

### G. INVENTING AND AFFECTING THE FUTURE

The vital role of vision, imagination and intention in creating the desired future. Students will design, implement and assess actions in the service of their individual and collective visions.

### H. MULTIPLE PERSPECTIVES

The perspectives, life experiences and cultures of others, as well as our own. Students will know, understand, value and draw from multiple perspectives to co-create with diverse stakeholders shared and evolving visions and actions in the service of a healthy and sustainable future locally and globally.

### I. STRONG SENSE OF PLACE

The strong connection to the place in which one lives. Students will recognize and value the interrelationships between the social, economic, ecological and architectural history of that place and contribute to its continuous health.

# |A| CULTURAL PRESERVATION AND TRANSFORMATION

## KNOWLEDGE AND ACTION

The preservation of cultural histories and heritages and the transformation of cultural identities and practices that contribute to sustainable communities. Students will develop the ability to discern with others what to preserve and what to change in order for future generations to thrive.

## PERFORMANCE INDICATORS

### Connecting the Biosphere and the Ethnosphere

Students will:

1. Demonstrate an understanding about the interrelationship between the health of the biosphere and the health of the “ethnosphere” and how losses and gains to both influence one another over time.
2. Explain the significance of language loss and language recovery on the health of cultures.
3. Discuss whether it is important that cultures do not fade away. Research examples of efforts to move toward sustainability by saving endangered cultures and languages.

### Reconciling Tradition and Change

Students will:

4. Develop an understanding of cultural influences on the ability of people to live well in their places over time. Pay particular attention to what should be preserved and what must change in order to thrive over time.
5. Transfer knowledge from lessons learned about changes in their own communities to changes in local communities throughout the world and draw conclusions about similarities and differences.
6. Consider the benefits of cultural homogeneity and of cultural diversity to the sustainability of a community in a place over time.

### Uncovering and Catalyzing through Arts and Culture

Students will:

7. Recognize the value of stories and the arts as links between the past and present and future.
8. Use stories and the arts to document and make visible what should be preserved and what needs to change in order to contribute to the sustainability of our communities in our places over time.

## |B| RESPONSIBLE LOCAL AND GLOBAL CITIZENSHIP

### KNOWLEDGE AND ACTION

The rights, responsibilities, and actions associated with leadership and participation toward healthy and sustainable communities. Students will know and understand these rights and responsibilities and assume their roles of leadership and participation.

### PERFORMANCE INDICATORS

#### Understanding Citizenship

Students will:

1. Articulate the rights and responsibilities of democratic participation and leadership in both local and global contexts.
2. Broaden their concepts of participation in government in order to incorporate the formal political realm and civil society in their present and future lives.
3. Analyze the relationship between 1) the formal language used to define and perceive citizens' roles and responsibilities, and 2) the everyday behaviors and actions related to social, civic, and political entities. Apply this understanding to effectively formulate and communicate their ideas through a variety of media.
4. Form an opinion about the requirements of responsible local, national, and global citizenship by synthesizing diverse perspectives on participation and governance.
5. Explore, review, and critique multiple forms of governance—including examples at the community, local, national, regional, and international levels.
6. Communicate the importance of creating arenas through which multiple forms of governance (international exchanges, international organizations, and international agreements) address issues together.

#### Activating Participation

Students will:

7. Demonstrate individual and collective respect for themselves and the Commons.
8. Illustrate the importance of equity, cooperation, teamwork, conflict resolution, and consensus building in addressing regional and global challenges.
9. Use “upstream problem identification” and systems thinking to address local and global issues/problems or to protect local/global assets through civic engagement in the service of a healthy and sustainable future.

#### Leading Change

Students will:

10. Use their own choices as exemplars that demonstrate awareness that all human choices contribute to sustainable or unsustainable consequences.
11. Determine and articulate group decision-making processes and make decisions that are collective, vision oriented, and solve more than one problem at a time while minimizing new problems.
12. Develop their sense of efficacy by using their legitimate voice to demonstrate advocacy skills.
13. Demonstrate their ability to integrate EfS knowledge, skills, and values by authentically applying them to their own lives and their communities.

## | C | THE DYNAMICS OF SYSTEMS & CHANGE

### KNOWLEDGE AND ACTION

A system is made up of two or more parts in a dynamic relationship that forms a whole whose elements 'hang together' and change because they continually affect each other over time. Students will know and understand the dynamic nature of complex systems and change over time. They will be able to apply the tools and concepts of system dynamics and systems thinking in their present lives, and to inform the choices that will affect our future.

### PERFORMANCE INDICATORS

#### Recognizing Systems as the Context

Students will:

1. See the whole system, its parts, and their place within the system.
2. Define what a system is and determine if things are or are not systems.
3. Be able to step back and see the big picture.
4. See and be able to describe the interrelatedness of at least two variables.
5. Be able to illustrate that what they see happening around them depends on where they are in the system (perspective consciousness).
6. Identify simple and complex systems in everyday life by recognizing specific parts of these systems and describing their interdependence as well as the circular or causal connections among them.
7. Perceive patterns within the system that connect the parts of the system to one another and to other systems over time.
8. See patterns over time and go beyond them to define structures within systems.
9. Be able to readily see underlying systemic structures and key interrelationships.
10. Transfer the knowledge of structure and behavior in one system to those of another system.
11. Be able to read and understand a complex system dynamics model and tell a story from it.
12. Effectively communicate an understanding of the structures and behaviors of systems by applying and transferring the tools and concepts of systems thinking and the dynamics of systems and change by studying a variety of systems over time.
  - Structures and Behaviors e.g., Overshoot and Collapse, Exponential Growth and Decline, Oscillation; Delays, Thresholds, Patterns Over Time, Feedback, Stocks and Flows, Reinforcing and Balancing Loops, Emerging Properties, and Regenerative Capacity.
  - Tools e.g. Fixes that Backfire Archetype, Shifting the Burden Archetype, Tragedy of the Commons Archetype, Healthy Commons Archetype, Behavior Over Time Graphs, Entry Points, Leverage Points, Causal Loop Diagrams, Stock and Flow Diagrams, and Dynamic Modeling.
13. Demonstrate an understanding that there is no such thing as a closed system. All systems are nested in other systems.
14. Demonstrate an understanding that systems are dynamic; they develop and change over time.
15. Recognize that a highly functioning team or group that represents diverse perspectives can enable us to recognize interdependencies in systems.

16. Create and know how to facilitate and participate in highly functioning teams or groups that represent diverse perspectives enabling them to recognize interdependencies in systems.
17. Make choices and decisions and take action(s) that maximize the health of the whole system upon which the specific part(s) depend(s).

### Taking the Long View

Students will:

18. Take responsibility for the effect(s) of their actions on future generations.
19. Describe the circumstances in which the following statement is true: In order for anyone to benefit, everyone has to benefit because the “players” are interdependent.
20. Distinguish between long term and short term goals.
21. Pay attention to the short term and give voice to the long-term gains and effects of their choices and actions as well as the choices and actions of others.
22. Take responsibility for the fact that the well being of future generations is largely dependent upon the choices and decisions they make (as well as the choices and decisions of others) during their lifetime.
23. Take responsibility for their choices/actions and be accountable to systemic and future consequences (on self, others and physical, social and biological commons) of choices they make today. The responsible choices, decisions and actions reflect whole systems thinking.
24. Choose, design, plan, and make decisions and act in ways that will benefit the “7th generation.”

### Taking Responsibility for the Difference We Make

Students will:

25. Make choices, read feedback, and change actions if needed to achieve positive systemic impact (successive approximation).
26. Identify and define reinforcing and balancing feedback loops within a system.
27. Track existing causal relationships [feedback loops] within the system over time.
28. Define how their own (or other peoples) actions affect the systems they are in.
29. Demonstrate an understanding of how one event can influence another.
30. Demonstrate that cause and effects are not always closely related in time and space in a system (there are delays in systems).
31. Reasonably predict intended consequences and reasonably predict and prepare for unintended consequences.
32. Make choices by considering implications and consequences of those choices on the economic, ecological and social systems in which they live.

### Paying Attention to Driving Forces

Students will:

33. Recognize and act strategically and responsibly in the context of the driving forces that influence our lives.
34. Feel connected to and demonstrate that they are continuously learning about the trends and driving forces within and among the social, economic, and ecological systems of which they are a part.

35. See the relevance in, and regularly identify, internal and external forces that have consequences and could influence the goals [outcomes] toward which she/he is working and makes choices, takes decisions, and acts accordingly.
36. Define the boundaries of the system you want to study or influence (boundaries can include time, space, people, etc).

### Being Strategic

Students will:

37. Envision, design, plan, act, and assess with whole systems in mind.
38. Recognize that a system's structure generates its own behavior (remember that every system is perfectly designed to get the results it gets).
39. Determine which leverage points have the greatest impact and which have the least so that they can identify where to intervene in the system(s) for the best possible impact on the system(s) consistent with the stated goal(s).
40. Distinguish problems from symptoms and identify the most "upstream" problem they can address within their sphere of influence.
41. Ask probing questions when things do not turn out the way we planned.
42. Make strategic choices and decisions and take strategic actions that reflect whole system designs (win-win-win...) in the context of a shared vision of a sustainable future.

### Shifting Mental Models

Students will:

43. Recognize that mental models are guiding constructs that change over time with new knowledge and applied insight.
44. Recognize/identify mental models and paradigms and constantly identify and question assumptions; explore the "automatic response" nature of our assumptions.
45. Demonstrate an awareness of how mental models limit our thinking.
46. Change perspective to increase their understanding of the system.
47. Recognize/identify how mental models and paradigms affect current reality and create our futures.
48. Recognize that all models are working hypotheses to be rigorously built, tested, and refined.
49. Illustrate the power of habits, paradigms, and values in identifying problems, gathering data, and making decisions.
50. Consider an issue fully and resist the urge to come to a quick conclusion.
51. Evolve/alter/improve mental models and paradigms when proven necessary and communicate the value of the new mental model and paradigm.
52. Hold the tension of paradox and controversy without trying to resolve it quickly.



## |D| SUSTAINABLE ECONOMICS

### KNOWLEDGE AND ACTION

The evolving set of theories and practices of economics that integrates the economic, and social systems with the ecological systems required to support and maintain life on the planet. Students will know and understand 21st century economic practices and will produce and consume in ways that contribute to the health of the financial, social, and natural capital.

### PERFORMANCE INDICATORS

#### Informing Our Choices

Students will:

1. Compare and contrast the histories, philosophies, and patterns of different economic systems and activities and their effects on the environment, equity, prosperity, and the diversity of cultures.
2. Illustrate their understanding of the relationships among ecological, economic and social systems.
3. Conduct life cycle analyses on several products and calculate the “full cost” of each product’s life cycle on the health of humans, our communities, economies, and the natural systems.
4. Use systems thinking and systems tools to identify patterns, impacts, and relationships between a product’s life cycle and the health of the system as a whole. Embed their understanding of the Materials Cycle principle in their work.
5. Articulate how human choices regarding consumption, production, distribution, and disposal of material goods affect our ability to thrive over time.

#### Making Informed Choices

Students will:

6. Calculate the buying power of their generation per year and take responsibility for contributing to a sustainable future by changing their consumption patterns.
7. Envision how their choices as individuals and as members of school, family, club, neighborhood, business, town, and prospective professional communities can contribute to the viability of a sustainable future.
8. Study sustainable economic indicators as exemplars and determine criteria for their use regionally. Design and name a sustainable economic indicator set that would contribute to the sustainability of their region.

### KNOWLEDGE AND ACTION

Healthy Commons are that upon which we all depend and for which we are all responsible (i.e., air, trust, biodiversity, climate regulation, our collective future, water, libraries, public health, heritage sites, top soil, etc.). Students will be able to recognize and value the vital importance of the Commons in our lives and for our future. They will assume the rights, responsibilities, and actions to care for the Commons.

### PERFORMANCE INDICATORS

#### Framing the Commons

Students will:

1. Define “The Commons” in their own words and in relation to their own experience. Distinguish between the concepts of public, private, and common and provide examples of how the latter can overlap with the first two.
2. Articulate the distinguishing characteristics of a Commons and the types of measures required to keep different types of Commons healthy.
3. Identify several examples of Commons in their school, town, and in the world and explain how those Commons function — i.e., the rules for access and use and who or what enforces them.
4. Research healthy Commons locally and/or globally and compare and contrast the various ways people use, protect, and care for them.
5. Identify limited versus unlimited Commons and open access versus legally and socially regulated. Explore how a Commons can become “tragic” and how a Commons can be sustainable. Articulate how the rights of private property can generate either “tragic” or sustainable outcomes.

#### Protecting the Commons

Students will:

6. Develop criteria that they can use [discuss ways] to reconcile the conflicts that exist between our individual rights and our collective responsibilities as citizens to tend the Commons. Apply those criteria to specific Commons.
7. Engage regularly with some of the questions that need to be asked about the tenure, welfare, and future of the Commons. Develop ideas, solutions, and/or thoughts about the Commons and generate new questions that address areas with which they are grappling.

## | F | NATURAL LAWS & ECOLOGICAL PRINCIPLES

### KNOWLEDGE AND ACTION

The laws of nature and science principles of sustainability. Students will see themselves as interdependent with each other, all living things, and natural systems. They will be able to put their knowledge and understanding to use in the service of their lives, their communities, and the places in which they live.

### PERFORMANCE INDICATORS

#### Understanding the Natural Laws and Ecological Principles

Students will:

1. Describe the role and interconnections among those subcomponents (terrestrial, aquatic, marine, and atmospheric) of our environmental system that support life on earth. This includes the relation of high quality and abundant water, soil, and air essential to support all life.
2. Explain the nature of ecosystems and biomes, their health, and their interdependence within the biosphere.
3. Provide examples of the ultimate dependence of humans on our shared natural resource base for life, sustenance and a suitable quality of life (e.g. food, shelter, health, aesthetics, etc.).
4. Demonstrate awareness of the importance of a great diversity of life (biodiversity) to the long-term sustainability of humankind and other living species on Earth.
5. A. Demonstrate their understanding that there are limits to growth on the planet—and that those limits are congruent with the limits of biological capacity and replenishment rates of sources and sinks.  
B. Cite at least three examples of how the power of these limits is being tapped through innovation and conservation.  
C. Describe the effect that living within the means of nature has on the health of our social and economic systems and vice versa.
6. Articulate the implications of the distribution, acquisition, depletion, and renewal of natural resources on the nature of societies and on the rate and character of economic and social development.

#### Advocating for Living by the Natural Laws and Principles

Students will:

7. Make a case for why global citizens should understand the basic natural laws and principles including:
  - a) the laws of thermodynamics
  - b) the basic principles of ecology
  - c) carrying capacity
  - d) appropriate scale
  - e) materials cycle
  - f) energy flows
  - g) systems develop
  - h) material value (value in order)
  - i) photosynthesis

## |G| INVENTING & AFFECTING THE FUTURE

### KNOWLEDGE AND ACTION

The vital role of vision, imagination, and intention in creating the desired future. Students will design, implement, and assess actions in the service of their individual and collective visions.

### PERFORMANCE INDICATORS

#### Envisioning, Creating, and Thinking Out of the Box

Students will:

1. Develop visioning skills to create a healthy and sustainable future.
2. Set goals and develop indicators (rubrics, checklists, and quantitative measures) to measure the extent to which they are moving toward or away from their goals.
3. Distinguish goals from indicators (problems from symptoms).
4. Identify the most upstream problems to address within their sphere of influence.
5. Utilize lateral thinking skills (“out of the box” thinking) to address problems in the service of their vision.
6. Demonstrate the habit of turning problems into opportunities to make positive change.
7. Make a contribution that solves more than one problem at a time and minimizes the creation of new problems. (Create value.)
8. Compare and contrast several indicator sets that are being used to measure the degree to which individuals, communities, and nations are on a path toward sustainability.
9. Develop a vision and a set of sustainable community indicators for their own community.

#### Tapping Our Passion

Students will:

10. Demonstrate the use of different learning strategies to increase their ability to understand information and ideas.
11. Work hard to achieve their goals.
12. Practice and continuously improve their work.
13. Look for challenges that foster learning and growth and that increase capabilities.
14. Articulate their strengths and limitations. Exhibit the drive to discover new territory.

#### Persevering

Students will:

15. Try, succeed or fail, reflect, continuously improve, try again, keep trying, never give up, never give up, never give up.
16. Develop the habit of overcoming distractions, obstacles, fatigue, boredom, and frustration to be successful.
17. Risk failure if they want to succeed—and that they can learn a lot from their mistakes (especially what not to do the next time).
18. Exhibit tenaciousness, resilience, to reach individual and collective goals, despite setbacks.
19. Exhibit the will power and the discipline they need to succeed.

## Accepting and Taking Risks

Students will:

20. Do things they haven't done before because that is what it takes to accomplish their goals, solve a problem, or be true to their passion. They will reflect on the fact that is how they learn and grow.
21. Tolerate the discomfort and uncertainty that learning brings.
22. Appreciate change in their lives.
23. Embrace making change, improving, innovating, and experimenting.
24. Engage in new experiences in "unknown territory," for the purpose of reaching their goals.
25. Explain the inevitable relationship between risk and change in their lives.
26. Display the courage to try new things and reflect on what it feels like to put themselves in a vulnerable position when they do.
27. Describe cases in which trying something new was required to do what they wanted to do, and to be who they want to be.
28. Demonstrate the willingness to do things before everyone else is ready to do them if that is what it takes to pursue their passion.
29. Be good at calculating and minimizing the risks they are taking.

## Finding Strength in Individuality

Students will:

30. Determine their own destiny. Make the decisions that will shape their future and adjust and improve on those decisions based on new experiences, new knowledge, and applied insights.
31. Know who they are. Recognize and take responsibility for the unique contribution they make.
32. "Walk the path" that they have made for themselves. If their path doesn't take them where they want to go, they demonstrate the skills and readiness to make a new and better one.

## Developing Self-Efficacy

Students will:

33. Believe in their ability to succeed.

## Taking Responsibility

Students will:

34. Be accountable for their actions (and inactions) as well as predict and be accountable for the long and short-term consequences of those actions.

## |H| MULTIPLE PERSPECTIVES

### KNOWLEDGE AND ACTION

The perspectives, life experiences, and cultures of others, as well as our own. Students will know, understand, value, and draw from multiple perspectives in order to co-create with diverse stakeholders shared and evolving visions and actions in the service of a healthy and sustainable future locally and globally.

### PERFORMANCE INDICATORS

#### Appreciating Diversity

Students will:

1. Recognize and work to dismantle prejudice and discrimination.
2. Demonstrate the ability to communicate and collaborate cross-culturally.
3. Recognize and value the strength in diversity.
4. Articulate and demonstrate appreciation for cross-cultural similarities and differences.
5. Recognize self worth and rootedness in one's own culture and community.
6. Demonstrate their ability to truly value and learn from the life experiences and cultures of others.
7. Demonstrate the ability to work with people who present different perspectives and to synergistically communicate and cooperate to create shared visions, understandings, and policies far richer than anything that could have been achieved alone.

#### Developing Perspective Consciousness

Students will:

8. Articulate all sides of an issue by demonstrating a strong foundation of understanding bias and other points of view.
9. Develop the capacity to empathize with, and experience, the outlook and emotions of another being, by putting themselves "in someone else's shoes" and expressing what it is like to see the world from that perspective.
10. Identify their own mental models about the world and recognize that mental models are guiding constructs that change over time with new knowledge and applied insight.
11. Develop the ability to truly understand and respect, if not agree with, the conclusions of others. Be able to see the relationship of those conclusions to the person's experiences, needs, values, and goals.
12. Seek to determine the interests that underlie people's positions and behaviors.

## || STRONG SENSE OF PLACE

### KNOWLEDGE AND ACTION

The strong connection to the place in which one lives. Students will recognize and value the interrelationships between the social, economic, ecological, and architectural history of that place and contribute to its continuous health.

### PERFORMANCE INDICATORS

#### Framing the Bio-Region

Students will:

1. Draw the parameters of their bio-region (watershed) and/or community, identify and list the characteristics of that bio-region, and make a case for why it is important to be able to do so.
2. Transfer their knowledge and skills of this bio-region to their study of other bio-regions.
3. Identify flora, fauna, and geologic formations in the bio-region. Describe the interdependencies, benefits, and threats associated with our human behavior and how these impact the bio-region and us.
4. Identify and map human habitats by overlaying development/settlement patterns across the bio-region. Assess the consequences over time and recommend and evaluate alternatives when necessary.
5. Identify and describe livelihoods associated with the development of the bio-regional economy.
6. Map assets (i.e. commons, gardens and green spaces, local food, safe zones, etc.) and liabilities (i.e. blight sights, high crime areas, high rates of asthma, noise, etc.) in their local community (example, Green Map).

#### Creating Social and Ecological Memory

Students will:

7. Document the heritage and current character of the place in which they live and present their research and a vision for the future of that place to an authentic audience.
8. Research, gather, and collect stories through interviews with community members.
9. Analyze and interpret stories by identifying emerging themes and patterns.
10. Compare and contrast the continuity and changes of a local place over time.
11. Explore the place through three ways of knowing: intuition, fact-finding, and pattern making.
12. Create a celebration of the unique cultural character of a place.
13. Preserve regional history and community memory through art, literature, storytelling, photography, journal observations, and role-plays.
14. Document and record stories in an anthology.
15. Produce individual and collective visioning statements and images.

#### Seeing the School Building as Curriculum

Students will:

16. Research the environmental, social, and economic impacts of the building and operations (inputs and outputs) of their school locally and globally. Make recommendations to improve performance.
17. Identify the sources and sinks of materials and energy used in the school.



18. Conduct a triple bottom line impact analysis on the inputs, outputs and proposed alternatives.
19. Provide evidence of skill development including: data gathering, data collection, organization, interviewing, prediction, estimation and scheduling meetings.
20. Communicate their findings accurately and effectively (oral presentations, power points, spreadsheets, graphs, role plays, murals, songs, etc.).
21. Transfer what they have learned to another context (home, other buildings, etc.).

### Developing Our School as a Green School

Students will:

22. Engage in goal setting/future visioning.
23. Identify indicators of success.
24. Produce an assets and liabilities inventory.
25. Determine the rights, roles, and responsibilities associated with achieving success.
26. Build a model of a green school as a prototype for their school.
27. Design, plan, implement, and assess green school initiatives.

### Making Responsible Choices

Students will:

28. Demonstrate an awareness and understanding of the impact of their consumption choices (food, purchasing, energy, materials) on the health of a place and be able to make responsible decisions.
29. Record consumption practices over time.
30. Use critical thinking and questioning to understand the media's role in shaping and influencing consumption patterns.
31. Describe changes in consumption from a historical perspective; compare and contrast former consumption habits with today's, and design the characteristics of sustainable consumption practices for the future.
32. Use evidence to support the responsibility of their consumer decisions.
33. Design and present exhibits for a Sustainable Consumption Expo to their parents and interested community members.

**Building a Legacy: As a way of communicating their love and connection to the place in which they live (school, community-bio-region), students undertake a legacy project and create value by making an authentic contribution to that place.**

34. Research, design, implement, and assess a project of the student's own choosing that adds or creates value.
35. Demonstrate that they can effectively address more than one problem at a time while minimizing the creation of new problems.
36. Develop the skills of "upstream problem" identification and win-win-win systems analysis of the project (use of archetypes, causal loop diagrams, and computer models preferred).
37. Communicate effectively about the project to an authentic audience outside of their school.
38. Teach about the project as a case study to students in a different grade level.



## FRAMEWORK

The Cloud Institute's Education for Sustainability (Efs) Framework illustrates our whole systems approach, which springs from the recognition that lasting transformation in education requires innovation at the curricular, institutional, and community levels.

No single element within our framework stands alone. Rather, all of the elements are interdependent and represent our learner-centered vision and our approach to educating for sustainability.



*“When Education for Sustainability (EfS) is comprehensively implemented over time through explicit instruction, aligned policies and the day to day practices of school community members, it increases the possibility that humans and other life will flourish on this planet indefinitely”.*

Jaimie P. Cloud, Founder and President – The Cloud Institute for Sustainability Education

The Cloud Institute’s Education for Sustainability (EfS) Standards and Performance Indicators draw upon our 19 years of experience educating for a sustainable future in both Pre-K-12 schools and in higher education institutions, and, have been influenced and reviewed by many scholars, thought leaders and practitioners who have devoted their professional lives to educating for the future we want.

Most notably, this work represents the thinking of the educators who contributed to Chapter 36 (The Education Chapter) of Agenda 21<sup>1</sup>, the U.S. Task Force on Education<sup>2</sup>, and many champions since then, including (in alphabetical order) Wendell Berry, Anne Perraca- Bijur, Jack Byrne, Harland Cleveland, Jaimie P. Cloud, Bob Costanza, Herman Daly, Wade Davis, Betty Sue Flowers, Paul Hawken, Willard Kniep, David Orr, Franziska Oswald, Jean Perras, Jonathan Rowe , David Selby, Peter Senge, Stephen Sterling, Lees Stuntz, Linda Booth Sweeney, Daniella Tilbury, Ursula Frischknecht-Tobler, Keith Wheeler, the thousands of teachers and administrators that piloted and contributed to the revision of these standards and indicators, and the tens of thousands that design and assess for them, and produce student work as evidence of them in their classrooms and their communities every day.

Collaboratively, we have created a framework for EfS and have made it accessible to educators, community members and policy makers. We continue to be inspired by the accomplishments of our colleagues in universities and ministries of education around the world especially those in Australia, Brazil, Canada, Germany, Japan, New Zealand, Mexico, Switzerland and the U.K.

<sup>1</sup> UNCED, Agenda 21, Regency Press, London, 1992, Chapter 36

<sup>2</sup> To read more about the historic contributions to Education for Sustainability, please see our defining chapter in “Stumbling Toward Sustainability” by John Dernbach, ed. Environmental Law Institute, 2002