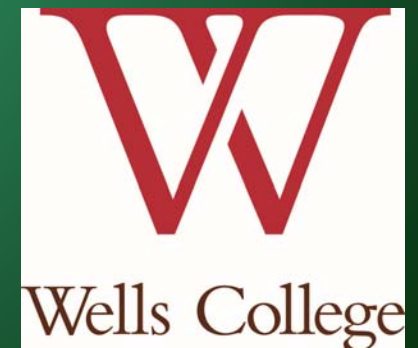


Integrating Sustainability Across the Curriculum

prepared for

The State of New York Sustainability Conference
SUNY at New Paltz November 3, 2016

Marian M. Brown, director
Center for Sustainability and the Environment



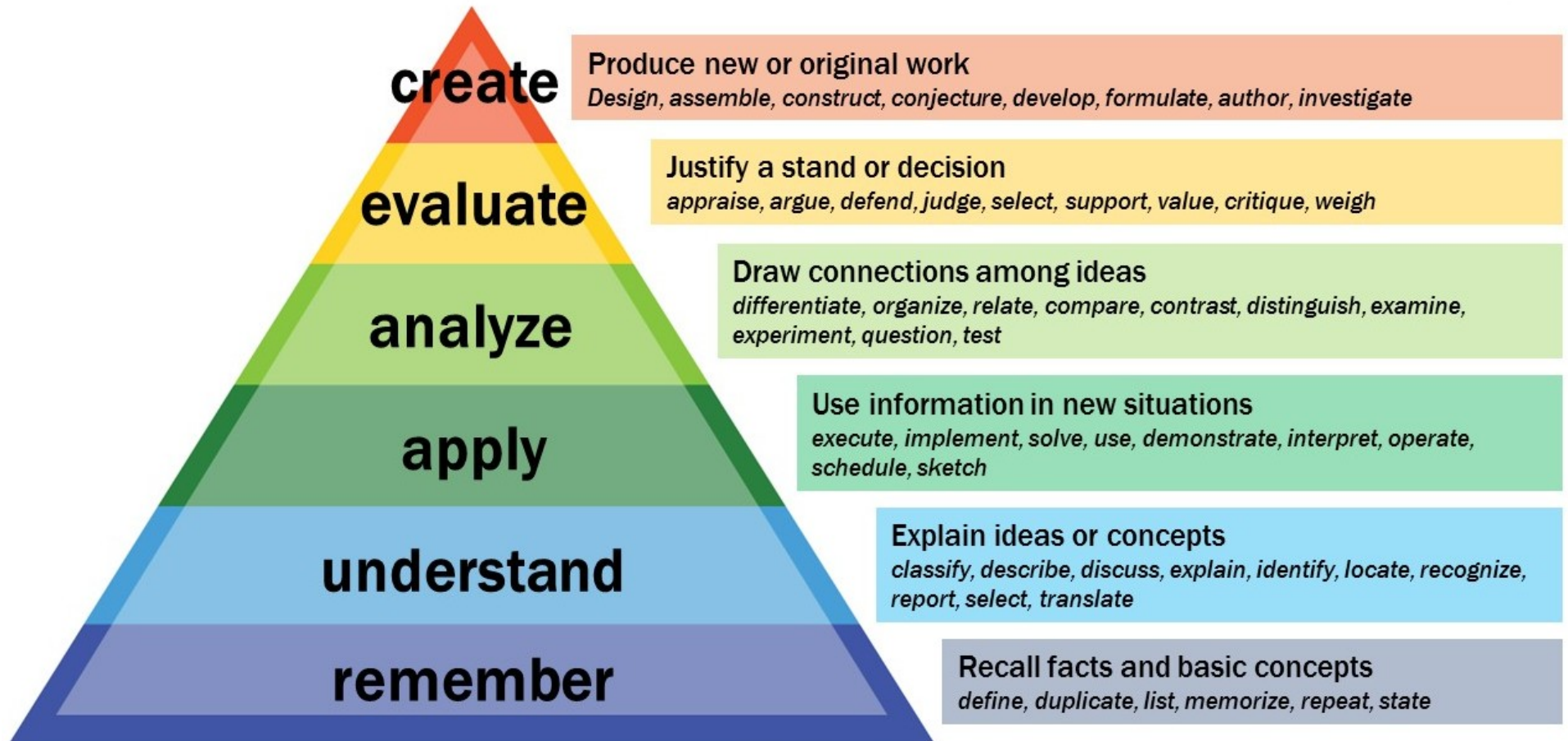


Education for
Sustainable Development
is about learning to:

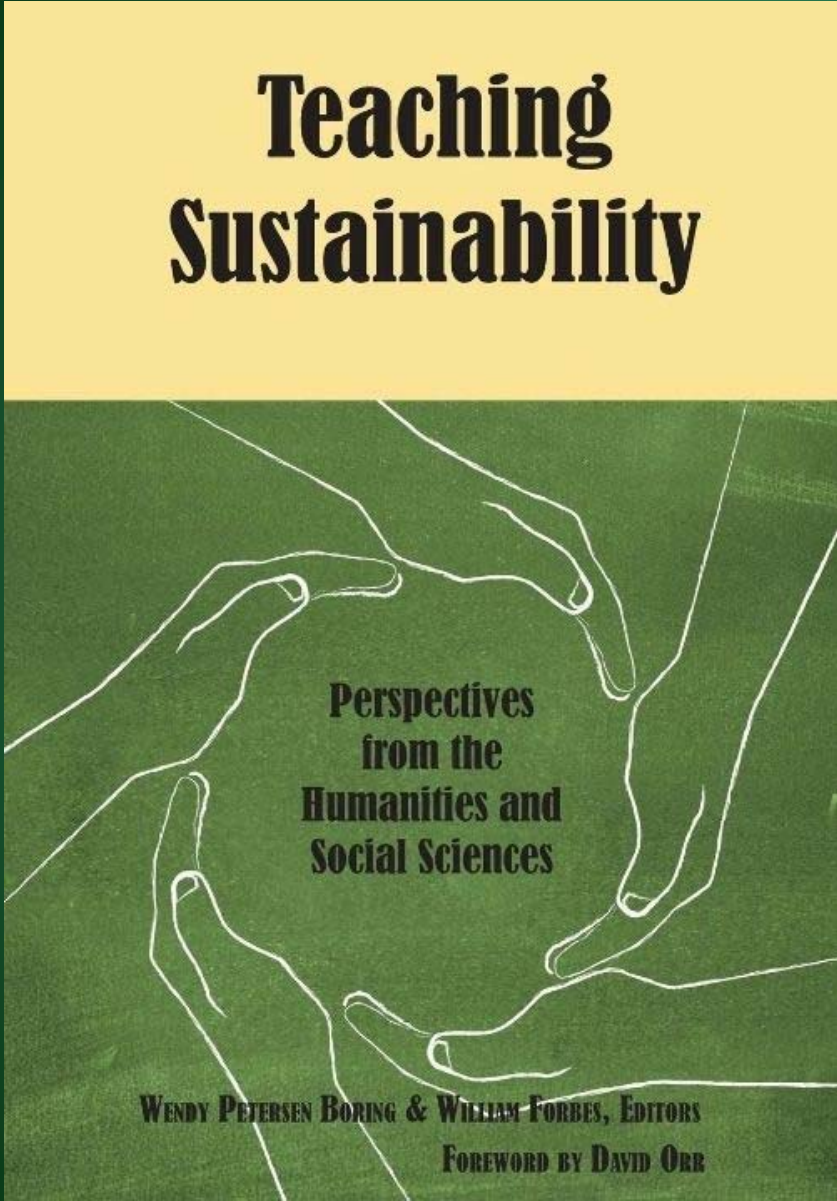
- respect, value and preserve the achievements of the past;
- appreciate the wonders and the peoples of the Earth;
- live in a world where all people have sufficient food for a healthy and productive life;
- assess, care for and restore the state of our Planet;
- create and enjoy a better, safer, more just world;
- be caring citizens who exercise their rights and responsibilities locally, nationally and globally.

~UN Decade of Education for Sustainable Development (2005-2014);
United Nations Educational, Scientific and Cultural Organization (UNESCO)

Bloom's Taxonomy



Teaching Sustainability



**Perspectives
from the
Humanities and
Social Sciences**

WENDY PETERSEN BORING & WILLIAM FORBES, EDITORS
FOREWORD BY DAVID ORR

*“Building a Pedagogical Toolbox:
The Nuts and Bolts of Infusing Sustainability
into Humanities and Social Science Courses”*

pp. 76 - 87

Sharon M. Meagher, Ph.D.

Dean of Arts & Sciences, Widener University

Typology of Pedagogical Strategies for Infusing Sustainability into Courses

Wider impact – creating institutional change



- Design new sustainability-themed courses
- (Re)cast central questions of the course in terms of sustainability
- Introduce curricular module(s) or units
- Thread questions/issues throughout
- Add or refocus service or experiential learning projects
- Introduce sustainability in parts of lectures
- Add some directed lectures or lessons
- Add new writing, research or project options
- Bring in classroom guests
- Add a field trip or site visit
- Focus on professional standards and sustainability
- Change classroom or laboratory practice(s)
- Develop co-curricular projects in conjunction with courses
- The hidden curriculum

Sustainability Literacy Assessment

30 question instrument – administered via *SurveyMonkey*

Ohio State University instrument – only using 30 knowledge questions

10 questions each among three sustainability knowledge domains:

- Environmental knowledge
- Social knowledge
- Economic knowledge

Pre-testing:

SUS 101 Intro to Sustainability (3 years experience)

Psych 335 Psychology of Environmental Sustainability

Econ 255 Economics of Globalization yet to be administered

Post-testing:

SUS 101 and *Psych 335*

survey to be repeated by same cohort in December

What is the most common cause of pollution of streams and rivers?

Dumping of garbage by cities.

Surface water running off yards, city streets, paved lots, and farm fields

Litter near streams and rivers

Waste dumped by factories

Don't know

Which of the following is a renewable resource?

Oil

Iron ore

Trees

Coal

Don't know

What is the most common reason that an animal species becomes extinct?

Pesticides

Habitat loss

Hunting

Climate Change

Don't know

Approximately how much of the oil used in the U.S. in 2010 was imported?

- 20%
- 50%
- 80%
- 90%
- Don't know

Many economists argue that electricity prices in the U.S. are too low because:

- They do not reflect the costs of pollution from generating the electricity
- Too many suppliers go out of business
- Electric companies have a monopoly in their service area
- Consumers spend only a small part of their income on energy
- Don't know

Which is the most commonly used definition of economic sustainability?

- Maximizing the share price of a company's stock
- Long term profitability
- When costs equal revenue
- Continually expanding market share
- Don't know

The wealthiest 20% of people in the U.S. own approximately what percent of the nation's privately held wealth?

20%

35%

50%

85%

Don't know

Over the past 3 decades, what has happened to the difference between the wealth of the richest and poorest Americans?

The difference has increased

The difference has stayed about the same

The difference has decreased

Don't know

Approximately how many of the world's 7 billion people go hungry or are malnourished?

10 million

100 million

1 billion

5 billion

Don't know

Fall 2014 – SUS 101 *Introduction to Sustainability* - 13 students

Freshmen 18.75 average score

Juniors 15.25 average score

Seniors 19.2 average score (3 business, 1 natural science)

Environmental Science major 19.25 average score

Business majors 15.5 average score

Fall 2015 – SUS 101 *Introduction to Sustainability* - 18 students

Freshmen 19 average score (only 1)

Sophomores 17.5 average score (only 2)

Juniors 21.8 average score (3 nat science)

Seniors 20.3 average score (6 natural science)

Env/Natural Science major 22.0 average score

Business majors 19.0 average score

Fall 2016 – SUS 101 *Introduction to Sustainability* - 19 students

Freshmen 20.14 average score (5)

Sophomores 17.33 average score (3)

Juniors 16.0 average score (3)

Seniors 16.125 average score (8)

Env/Natural Science majors 20.8 average score

Business majors 19.0 average score

Fall 2016 – Introduction to Sustainability pre-test

Questions most commonly answered correctly:

Q6: Ozone forms a protective layer in the earth's upper atmosphere. What does ozone protect us from? (*UV rays*) 17/19

Q9: Which of the following household wastes is considered a hazardous waste? (*batteries*) 16/18 (one NR)

Q27: Higher levels of education generally lead to (*greater annual earnings*) 17/19

Q1: There are many different kinds of animals and plants, and they live in many different types of environments. What is the word used to describe this idea? (*Biodiversity*) 16/19

Q24: Over the past 3 decades, what has happened to the difference between the wealth of the richest and poorest Americans? (*The difference has increased*) 16/19

Q7: Where does most of the garbage in the U.S. end up? (*landfills*) 14/19

Q8: What is the name of the primary federal agency that oversees environmental regulation? (*EPA*) 14/19

Q10: What is the most common reason that an animal species becomes extinct? (*habitat loss*) 14/19

Q18: Which of the following countries has now passed the U.S. as the biggest emitter of the greenhouse gas carbon dioxide? (*China*) 14/18 (one NR)

Fall 2016 – Introduction to Sustainability pre-test

Questions most commonly answered INcorrectly:

Q19: Which of the following is the primary reason that gasoline prices have fallen lately in the U.S.? (*decreased global demand due to the prolonged economic stagnation*) 2/19 (Note: Econ professor Kent Klitgaard submitted alternate question to original Q19 due to current conditions).

Q17: Approximately how much of the oil used in the U.S. in 2010 was imported from other countries? (*50%*) 4/19

Q16: If everybody on the planet consumed natural resources at the rate of the average American, approximately how many Earths would be needed to support humankind? (*5 earths*) 6/19

Q26: Approximately how many of the world's 7 billion people go hungry or are malnourished. (*1 billion*) 7/19

Q27: Which of the following populations has the highest growth rate? (*Africa*) 7/19

Q21: Which of the following is a leading cause of depletion of fish stocks in the Atlantic Ocean? (*Fishermen seeking to maximize their catch*) 7/19