DATA GETS GREEN

In these curriculum connectors, students will have the opportunity to interact with **data** to draw conclusions about sustainable practices by:

- Participating in **engineering design** challenges
- **Analyzing supply and demand**
- Evaluating government policies
- Creating **consumer** campaigns
- Constructing claims using data as evidence

NOTE TO EDUCATOR: Definitions for all **key vocabulary words** can be found in a glossary on the last page.

SUSTAINABILITY

Effects of global **climate change,** increases in natural disasters and extreme weather events, and **depletion** of **natural resources** are issues becoming more prevalent in the minds of even the youngest **generations**. Universal **sustainability** initiatives like "Reduce-Reuse-Recycle" start students on the path towards responsible citizenship, and these activities provide educators an opportunity to use data in the classroom to further encourage responsible and sustainable consumer choices.

ENGINEERING SUSTAINABILITY— DESIGNING OUR FUTURE

MODERN SUSTAINABILITY IS MUCH MORE THAN PAPER VERSUS PLASTIC

Activity Idea #1 (beginner)

Using the data and suggestions included in the report, students will participate in an engineering design challenge. After identifying an item with a negative impact on the environment, students will use craft supplies and recyclable materials to create a sustainable alternative or **innovation** by following the engineering design process.

Activity Idea #2 (intermediate)

After participating in an engineering design challenge to create or innovate more sustainable alternatives to items with negative environmental impacts, students will **evaluate** competing design solutions with regards to **conservation,** recycling, and reuse of resources. They will revise their designs based on the feedback they receive.

Connect to: Engineering Design; Earth and Human Activity

Career Connection: Innovation Analyst

Visual/Graphic: Charts and graphs are provided below for settings without internet access.

STUDENT HANDOUT

TAKE ACTION TOWARD A PLASTIC AND WASTE-FREE WORLD

USE POST-CONSUMER RECYCLED MATERIALS

Message to your consumers that you have made the shift on the packaging and in your marketing materials.

LEVERAGE MATERIALS THAT ARE EASY AND EFFICIENT TO RECYCLE

Simply using materials that are "recyclable" isn't enough.

COMMUNICATE TRANSPARENTLY ABOUT WHAT CAN BE RECYCLED FROM YOUR PACKAGING AND HOW TO RECYCLE

You can even use your packaging to shed light on how recycling works while encouraging consumers to investigate their communities' recycling infrastructure.

Example: Siggi's yogurt uses recycling-centric packaging by using paper labels that can be removed from the plastic cup with easy-to-tear serration to help consumers separate paper, plastic, and metal and appropriately recycle. The company promotes sustainability, builds a bond with consumers, and incentivizes consumer action with the messaging: "Please tear the sleeve off here to: recycle the paper sleeve separately; read more about our story on the inside."

Achieving something similar may require rethinking a packaging design and making it simpler, but may be well worth the effort through reduced materials and consumer credit via higher engagement and stronger brand equity perceptions

CONSIDER INVESTING IN IN GREEN, RENEWABLE PACKAGING COMPANIES

Proactively and thoughtfully keep your packaging supply chain up-to-date.

For example, Starbucks invested in Frugalpac, an innovative cup manufacturer that allows easy separation of waterproof film (typically plastic) liner and recycled paper outer to allow consumers to recycle the cup. Currently, most takeout coffee cups, including Starbucks, which have plastic liners, are very difficult to recycle.

Nielsen: [Modern Sustainability Is Much More Than Paper Versus Plastic](), 2019

SUPPLY AND DEMAND— THE ECONOMY OF SUSTAINABILITY

SUSTAINABILITY SELLS

Activity Idea #1 (beginner)

After analyzing the data in the *Sustainability Sells* report, students will participate in a discussion about trending consumer demands for **sustainable products.** They will draw conclusions about how an increase in demand might affect changes in supply and prices.

Activity Idea #2 (intermediate)

Students will research government policies and programs aimed at advancing the country's sustainability, such as the Pollution Prevention Law and Policies, the Clean Air Act, the Clean Water Act, or the Environmental Quality Incentives Program. In groups, they will consider the data in the *Sustainability Sells* report to compare to the goals of such policies and programs using **cost-benefit analysis** in order to answer the question, "Does the demand for sustainable products justify the cost of using sustainable practices to create the supply?"

Connect to: Exchange and Markets; Collaborative Discussion; Using Data to Draw Inferences; Research

Visual/Graphic: Table provided below for settings without internet access.

SUSTAINABILITY SELLS ACROSS CATEGORIES

Legend: Overall category sales growth • Sustainable products sales growth
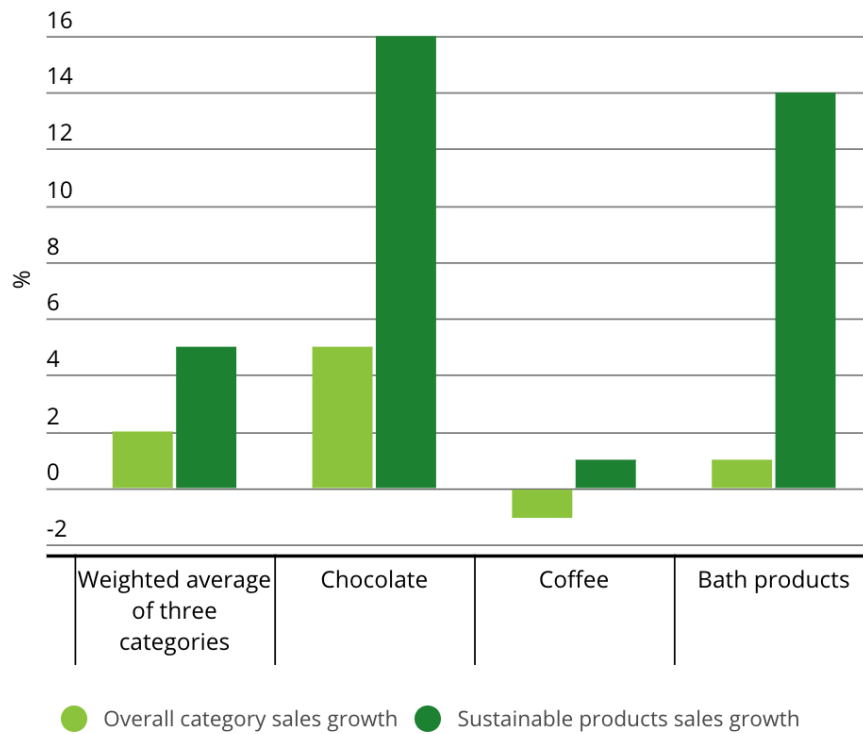
Nielsen: Sustainability Sells: Linking Sustainability Claims to Sales, 2018

CARING MATTERS—SUSTAINABILITY FOR THE FUTURE

GLOBAL CONSUMERS SEEK COMPANIES THAT CARE ABOUT ENVIRONMENTAL ISSUES

Activity Idea #1 (beginner)

In five even groups, students will be assigned an environmental issue. They will create a public service campaign after analyzing the data in the report, adjusting language and tone to consider the most advantageous geographic location(s) and generational **demographic** to present their assigned issue.

Activity Idea #2 (intermediate)

Students will research changes in global climate, depletion of natural resources, and increases in natural disasters. They will construct an explanation, using data from the report as evidence, for how the information from their research has influenced human activity and consumer choices. *NOTE TO EDUCATOR:* It is expected that students' research will show an increase in these **phenomena**, allowing them to use the data in the graphs to support their conclusions and build **correlations** regarding consumer choices.

Connect to: Argumentative Writing; Presenting Knowledge; Language Appropriate to Context; Earth and Human Activity; Explanatory Writing

Visual/Graphic: Charts and graphs are provided below for settings without internet access.

CONSUMERS AROUND THE WORLD CARE ABOUT ENVIRONMENTAL ISSUES

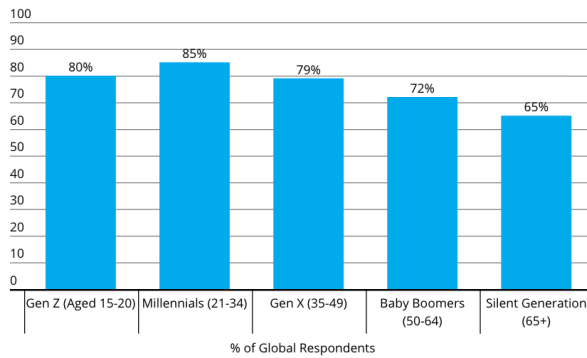Percentage of respondents who are extremely or very concerned about the following environmental issues
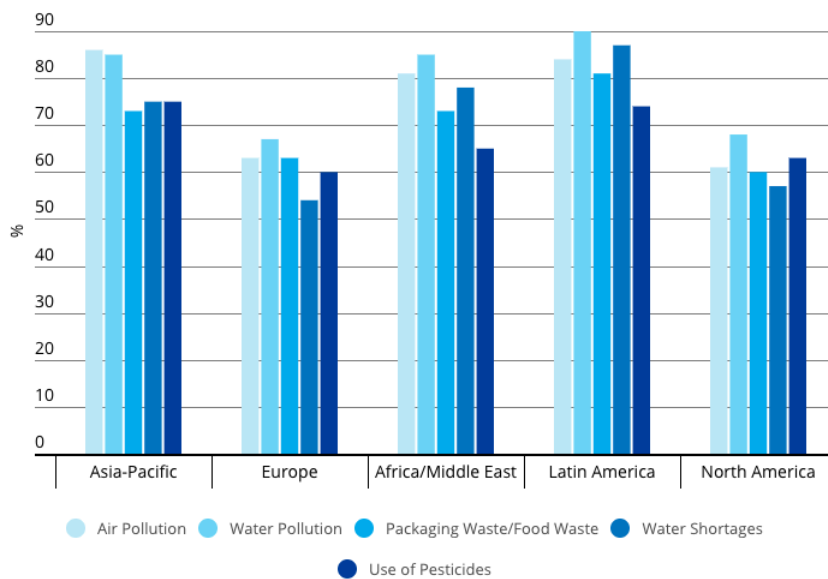
Source: The Conference Board® Global Consumer Confidence Survey, conducted in collaboration with Nielsen Q2 2017

Nielsen: Global Consumers Seek Companies That Care About Environmental Issues, 2018

CORPORATE SUSTAINABILITY IS IN HIGH DEMAND ACROSS GENDER AND GENERATIONS

Generations

Bar chart — % of Global Respondents:
- Gen Z (Aged 15-20): 80%
- Millennials (21-34): 85%
- Gen X (35-49): 79%
- Baby Boomers (50-64): 72%
- Silent Generation (65+): 65%
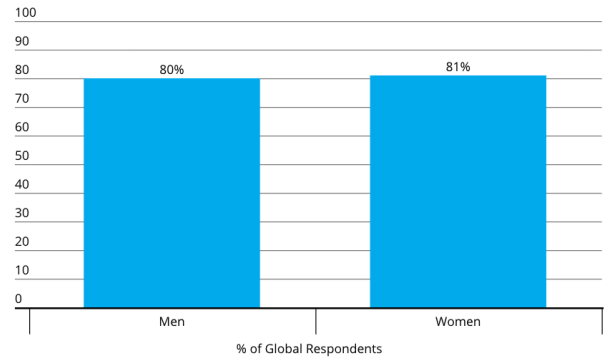
● It is extremely or very important that companies implement programs to improve the environment

Source: The Conference Board® Global Consumer Confidence Survey, conducted in collaboration with Nielsen Q2 2017

Gender

Bar chart — % of Global Respondents:
- Men: 80%
- Women: 81%

● It is extremely or very important that companies implement programs to improve the environment
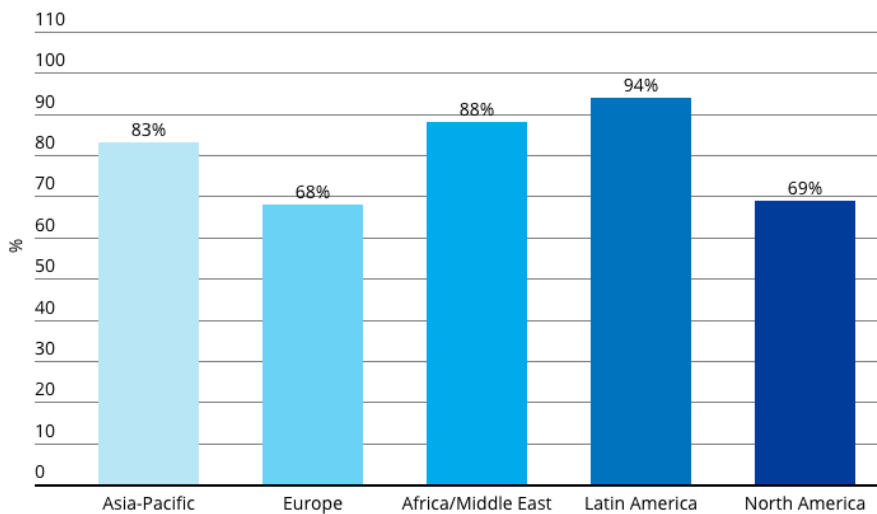
Source: The Conference Board® Global Consumer Confidence Survey, conducted in collaboration with Nielsen Q2 2017

Nielsen: Global Consumers Seek Companies That Care About Environmental Issues, 2018

CONSUMERS EXPECT COMPANIES TO CARE ABOUT THE ENVIRONMENT

Percentage of respondents who say it is extremely or very important that companies implement programs to improve the environment

Source: The Conference Board® Global Consumer Confidence Survey, conducted in collaboration with Nielsen Q2 2017

Nielsen: Global Consumers Seek Companies That Care About Environmental Issues, 2018

COLLECTING DATA—IN ORDER TO SOLVE A PROBLEM, YOU NEED TO FIND THE RIGHT INFORMATION

Students will collect their own data from family and friends about which environmental or sustainability issues are of highest priority to them. Based on their data, students will construct an action plan to advocate for consumer preferences to manufacturers and retailers.

NOTE TO EDUCATOR: It may be helpful to provide students with a list of pre-selected environmental or sustainability issues from which their respondents can choose.

KEY VOCABULARY

Analyze: To study or determine the nature of a relationship

Climate Change: Changes in Earth's weather patterns over time

Conservation: Carefully preserving or protecting something, particularly the environment

Consumer: A person that uses goods and services, or participates in an economy

Correlation: The relationship between two variables or data sets

Cost-Benefit Analysis: Estimation of the strengths and weaknesses of an approach, decision, process, or program

Data: Facts and statistics that can be used for analysis, discussion and/or calculations

Demographics: The characteristics of human populations (such as age or income)

Depletion: To greatly reduce the quantity of something

Engineering Design Process: Series of steps that engineers follow in the design of a product or solve a problem

Evaluate: To determine the value, worth, or significance

Generation: A group of individuals born or living at the same time

Innovation: The introduction of something new

Natural Resource: Materials or substances supplied by nature, like water, land, minerals, or forests, that are often used as part of an economy

Phenomenon: Observable facts or events, especially something that is remarkable

Supply and Demand: A concept from economics that analyzes the amount of a good or service that is available to buy, compared to the amount people want

Sustainability: The harvesting and use of materials in such a way that decreases the risk of their depletion; avoiding the depletion of natural resources

Sustainable Products: Products that provide environmental, social, or economic benefit while protecting the environment and community that produce them