ENVIRONMENTAL STUDIES

BONUS

Carbon Footprint

GRADES 5-8

NAME: _____

Student Worksheet

Activity One

Writing a Short Report

Reading Energy Meters and Energy Bills

Your household very likely has an electric meter that measures the amount of electricity being used at any time. You will also have a gas meter if that is one of your sources of energy. For each of these, you will receive monthly bills for the amount of energy you use.

1. Find the energy bills for an entire year. Compare the amount of each kind of energy you use in different seasons. Make graphs showing energy use versus month of the year.
2. You may also be able to find average temperatures for each month of the year. Add temperature to the graphs and compare trends in energy use to trends in temperature.
3. Look at the electric and gas meters and watch the little dials spin around. Each dial represents a different digit (1s, 10s, 100s, etc). Figure out how to read the meters.
4. Turn off everything that is using gas and electricity and see how much gas and electricity you use per hour. You will still be using some gas because of pilot lights. You will probably still be using some electricity because of little lights that are always glowing on electronic devices.
5. Turn on just one 100-Watt light bulb. Read the electric meter, and then read it again one hour later. Find the difference in kilowatt-hours (kWh). Subtract the amount from step 4. That should be the energy used by the light bulb. It should be 0.1 kWh. (100 W × 1.0 hr. × 1.0 kW/1000 W)
6. You may also want to measure the energy used by some of your other electrical appliances.
7. You can use the same procedure to measure the energy used by gas appliances.

NAME: _____

Student Worksheet

Activity Two

Make a Solar Hot Water Heater

Solar hot water heaters are very simple. They are basically just water inside a black plastic container lying in the sunlight. You can use any black plastic container for this experiment.

1. You can buy "camping showers" at a large outdoor store. They are black plastic bags with a hose and shower head attached. The idea is to leave the bag filled with water in the sun all day and then hang it up in the late afternoon and take a shower.
2. If you can't find a camping shower, make your own with a black plastic trash bag or a length of black plastic irrigation hose.
3. Position your shower in the sun so that sunlight strikes the surface of the bag as directly as possible.
4. Measure the temperature of the water that you put in the bag, and measure it again several times during the day. Did it get hot enough to take a shower?
5. Try it again during a cloudy day. You may be surprised how much the temperature rises even when it is not very warm outside.

NAME: _____

Activity Three

Visit a Farmers' Market

Find the nearest farmers' market. Before you visit, think of the questions you want to ask and prepare a notebook with questions and spaces for answers. Visit stalls selling several kinds of produce. Look for fruits, vegetables, nuts, flowers, honey, eggs, and dairy products. Remember you will probably be talking directly to the farmers. They will probably be eager to tell you everything they know about their products.

These are some of the questions you can ask. See if you can think of some questions of your own to add to the list.

1. Is your food organic?
2. How far away is your farm?
3. How do you fertilize?
4. How do you control pests and weeds?
5. What machinery do you use?
6. Do you use any sources of "green" energy, such as wind or solar?
7. Also, make notes on the amount of packaging compared to food in a supermarket.

NAME: _____

Student Worksheet

Activity Four

Compare Motor Vehicles

Learn about hybrid cars and either buses or trains. Visit an auto dealership that sells hybrid cars and a public transit company that has buses, trains, or subways. Make a list of questions to ask before you go. Here are some to get you started.

Hybrid car dealer

1. First tell a salesperson you are trying to convince an adult to buy a hybrid and you need some talking points for your argument.
2. Ask how many miles per gallon hybrid cars get around town and on the highway.
3. Ask to see the engine and ask for an explanation of how it works.
4. Ask to see the dashboard dials and readouts and ask what information they tell you.
5. Ask if the gasoline part of the engine can run on biofuels.
6. Ask if you can also plug it in to an electrical outlet or if it only generates its own electricity.

Bus or Train Company

1. Visit the offices of a bus or train company. If you can't find anyone who knows about the energy statistics of the vehicles, ask for some literature.
2. Ask for statistics:
    a. Miles per gallon
    b. Average number of passengers
    c. miles per gallon per passenger
    d. Pounds of CO_2 emissions per passenger-mile
3. Ask if any of the vehicles run on alternative fuels or if there are plans to purchase such vehicles.
4. If any of the vehicles are electric, ask if any of the electricity is generated by alternative power sources.

NAME: _____

Student Worksheet

Activity Five

Calculate the Carbon Footprint of a Bicycle

Of course, a bicycle has a very small carbon footprint, but it is not zero. The footprint comes from three places: Energy used to manufacture the bicycle, the footprint related to the extra food you have to eat to make up for the extra calories you burn, and the CO_2 you exhale. You will have to do a little guesswork, but you can calculate all of these. The result will be the footprint of commuting to school on your bike.

1. **Manufacturing the bicycle:** Multiply the cost of the bicycle when it was new times 0.50 and divide by what you think will be the total life of the bicycle in years. Multiply this by the fraction of the bike's use that would be for travel to school. The answer will be pounds of CO_2.
2. **Extra food you have to eat:**
    a. Assume you have the diet of the average American your age of about 2100 kilocalories (kcal) per day. Multiply this by 365 days in the year.
    b. Riding a bicycle burns about 28 kcal per mile. Multiply this by the round-trip distance to school and then by the number of days in the school year.
    c. Divide the result in b. by the result in a. and multiply by 100. This is the percent increase in your food footprint.
    d. Find the number you calculated for your food footprint when you used the footprint calculator. Use the percent increase from part c. to find your yearly increase.
3. **CO_2 Exhaled:** This will be the least accurate part.
    a. Assume that the added exertion of riding a bicycle causes you to exhale an extra 0.0035 pounds (lbs.) of CO_2 per minute.
    b. Multiply this by 60 min./hr. and divide by 10 mi./hr to get pounds per mile.
    c. Multiply the answer in part b. by the round-trip distance to school and then by the number of days in the school year. This is the pounds of CO_2 you exhale per year riding your bike to school.
4. Add parts 1. 2. and 3. and compare to the footprint for transportation by car as calculated using the footprint calculator.

NAME: _____

Student Worksheet

Activity Six

Visit a Recycling Plant

If you live in a city, you are probably not far from a recycling facility. Many public landfills also have a recycling facility at the same location. Before you go, think of some questions to ask and prepare a list in a notebook with space to write the answers. Here are some suggestions to get you started:

1. Which materials do you recycle?
    a. Glass?
    b. Aluminum?
    c. Plastic?
    d. Paper?
    e. Steel?
    f. Organic waste, such as lawn trimmings and wood chips?
    g. Any automotive materials, such as motor oil or batteries?
2. How much separating of materials do you do and how much do people at home do?
3. For each of the materials that are recycled, what is the process and what are the products?
4. In each case, how much energy is saved?
5. How much CO_2 reduction comes from recycling each material?
6. Does the whole recycling process actually make a profit?

NAME: _____

Student Worksheet

Activity One

Writing a Short Report on Carbon Offsets

Write a short report on carbon offsets. It sounds straightforward: You or your school has a carbon footprint that you are unable to reduce to zero. You give money to some organization that is doing something that reduces greenhouse gas emissions. Perhaps they say that they can reduce CO_2 emissions by one ton for every $10 dollars you give them. Sounds good, but many people are skeptical of the whole concept. Here are some of the questions and controversies you can address in your report:

1. Can all these companies be trusted?
2. Does anyone oversee the program and validate legitimate organizations?
3. Are carbon offsets a "license to pollute" that postpones a needed change in lifestyle?
4. What about projects that would have been done anyway—like a logging company replanting trees after they log? Should that count as an offset?
5. What types of projects can be used as offsets?
6. Can you buy carbon offsets at airports to offset your share of the CO_2 that will be emitted by the plane you are getting on?

Many of these questions can be answered at:
http://www.carboncatalog.org/providers/

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Student Worksheet

Activity Two

Payback Time

How long does it take for a device that cuts greenhouse gas emissions to pay for itself in reduced energy bills? The object of this activity is to estimate the payback time for installing some energy-saving devices at your school. First choose one of these improvements that your school could benefit from:

1. Replacing incandescent bulbs with fluorescent bulbs.
2. Replacing single-pane windows with double-pane windows. (These are also called "double-glazed")
3. Installing a solar hot water heater.
4. Installing photovoltaic cells.

First you will need to find the amount your school spends on the electricity or fuel to power the current system. Next, estimate the amount of savings each month after installing the new system. Finally, divide the cost of the new system by the monthly savings. The result will be the number of months the new system takes to pay for itself. When looking for information, try to find independent sources, rather than using estimates from the companies selling the systems.

NAME: _____

Activity Three

Set Up a Carpool Organization

People can't carpool if they don't know each other's names, addresses, and personal schedules. The easiest way to connect people who could carpool is through the Internet. Ask a teacher who teaches computer skills to help you set up a website where people can exchange information about carpooling. This is the information that the site should provide:

- Name and address of parents and students
- Phone number
- E-mail address
- Route taken to and from school
- Capacity of vehicle
- Schedule of any before or after school activities the student participates in

Get help making the site as user-friendly as possible. For example, clicking on the location of your home on a map could reveal the homes of all nearby students and show the routes they take to school.

The other option is to pass out questionnaires to gather all the above information and then sorting it all out by hand.

NAME: _____

Activity Four

Create a Bike Route Map

Learn the safest ways to travel to school by bike. A map of bike routes surrounding your school may already exist. Try one of the following sources to find a map: bike shops, book stores, and on-line search for your town name and "bike lane," "bike route," or "bike map."

Use this information to create a map that focuses on the needs of students who want to travel to your school by bike. Ride some of the routes on the map you found to see if it is accurate. On your map you should use different colors to indicate different levels of safety for the routes. Definitely distinguish between bike lanes that put you beside traffic and the much safer bike routes that are completely isolated from traffic.

NAME: _____

Student Worksheet

Activity Five

Calculate the Carbon Footprint of Your Feet

You may have read that running has no carbon footprint. Not quite. It would be more accurate to say that the carbon footprint for running is too small to worry about. If you are curious just how small it is, do this calculation. The footprint comes from three places: Energy used to manufacture the shoes, the footprint related to the extra food you have to eat to make up for the extra calories you burn, and the CO_2 you exhale. You will have to do a little guesswork, but you can calculate all of these. The result will be the footprint of running to school.

1. **Manufacturing your running shoes:** Multiply the cost of your running shoes when they were new times 0.50 and divide by what you think will be the total life of the shoes in years. Multiply this by the fraction of the shoes use that would be used for running to school. The answer will be pounds of CO_2.
2. **Extra food you have to eat:**
   a. Assume you have the diet of the average American your age of about 2100 kilocalories (kcal) per day. Multiply this by 365 days in the year.
   b. Running burns about 100 kcal per mile. Multiply this by the round-trip distance to school and then by the number of days in the school year.
   c. Divide the result in b. by the result in a. and multiply by 100. This is the percent increase in your food footprint.
   d. Assume you have an average food footprint of 7500 pounds (lbs.) per year. Use the percent increase from part c. to find your yearly increase.
3. **CO_2 Exhaled:** This will be the least accurate part.
   a. Assume that the added exertion of running causes you to exhale an extra 0.014 lbs. of CO_2 per minute.
   b. Multiply this by 60 min./hr. and divide by 6 mi./hr to get pounds per mile.
   c. Multiply the answer in part b. by the round-trip distance to school and then by the number of days in the school year. This is the pounds of CO_2 you exhale per year running to school.
4. Add parts 1. 2. and 3. This is your foot footprint. Compare this to the footprint of about 1.0 lb./mi. for a car.

NAME: _____

Student Worksheet

Activity Six

Comparing Light Bulbs

You may remember that compact fluorescent bulbs are much more efficient than incandescent (tungsten filament) bulbs. Why do you think that is? A 100-watt incandescent bulb provides about as much light as a 25-watt fluorescent bulb. Where did that 75-watt difference go?

For this activity you will need one bulb of each kind. They should be rated as providing the same amount of light. The 100 and 25-watt bulbs mentioned above are a good combination. Somewhere on the packaging of fluorescent bulbs you should be able to find a note as to which incandescent bulb it is equivalent to. You will also need a thermometer.

1. Put one of the bulbs in a lamp with a fixture that allows the bulb to point up. Do not turn the light on yet.
2. Hang the thermometer from a string so that the thermometer bulb is about 6 inches above the top of the light bulb.
3. Record the temperature on the thermometer and turn on the lamp.
4. Record the temperature every 15 seconds for 2 minutes.
5. Turn the lamp off and *WAIT FOR THE BULB TO COOL.*
6. Replace the bulb with the other bulb and repeat step 4.
7. Graph temperature vs. time for both bulbs.
8. Draw a conclusion from the results as to why fluorescent bulbs are more efficient than incandescent bulbs.

NAME: _____

Student Worksheet

Activity One

Build a Model of a Carbon Neutral Community

In this activity, you will show how all the design features of a carbon neutral community fit together and what the town would look like to a bird flying over it. The materials can be very simple. Here are some suggestions.

- Toy building blocks to use as houses, shops, and schools
- Chunks of a green sponge to use as trees
- Sawdust or sand to build hills
- Mirrors for water
- Any toys that are the right scale
- Use your imagination to make such things as rail systems, wind turbines, and solar cells.

Scissors, magic markers, and glue or a glue gun will be useful.

Think of how you will add these features in a way that they will work together:

Community Size and Street Plan

Make it small enough to be walk-able and bike-able. Arrange the streets for ease of travel. Think about the best locations for markets, schools, and businesses.

Energy Supply

What will be the best alternative energy supply? Where should it be located?

Transportation

Is it possible to design the community so that cars are not even needed? What kind of public transport will you use, and how will it be powered?

Food Supply

Where will the food be grown, how will it be transported, and where will it be sold?

Open Space

Include a greenbelt around the town and green spaces inside the town. Farmland also counts as open space. Plant lots of trees.

If you like to draw and you are good at it, you could draw a detailed picture of a carbon neutral community instead of building one.

NAME: _____

Student Worksheet

Activity Two

Report on Green Roofs

Learn about the different types of buildings covered with grass, plants, and trees and write a short report on the subject. Here are some of the topics you can explore:

Modern homes with grass roofs

If you search the Internet or library for "green roof" and "grass roof," you will get a mixture of results. Sort through the results for information and pictures on single-family homes. Look for any information on how to prepare a roof for laying down sod and on what goes under the sod.

Traditional grass-covered homes

In some European countries, people have been building houses with grass roofs for hundreds of years. You will find out about these if you search for "Swiss grass roof" and "Scandinavian grass roof."

Earth houses

Some very interesting houses are built into hillsides. You can find out about these by searching for "earth house." Report any additional advantages these homes have compared to grass roofed houses.

Large commercial buildings with green roofs

For a general search, look for "rooftop park" and "rooftop garden." For a few of the wilder ones, search for "Singapore Polytechnic School of Art and Design," "California Academy of Sciences," and "Waldspirale."

Finally, if you can find a birds-eye view of your community, make a copy of the picture. Now use a green marker to color some of the rooftops green. On the large, flat roofs, add some trees and vegetable gardens. If you have access to a computer and a color printer, you can also go to a site that shows satellite views and print out a picture of your community. You will see which roofs are already green and color in the ones that could be.

You might also want to look for satellite views of some of the green roofed commercial buildings mentioned above.

NAME: _____

Student Worksheet

Activity Three

Visit an Alternative Energy Company

Search the telephone or internet yellow pages for "solar" and "wind." Look for listings of companies that install or build solar cells, solar hot water heaters, and wind turbines. Choose one that looks interesting, call them, and ask if you can visit. Prepare for your visit by preparing a list of questions. Here are some questions you might like to ask:

- How do your devices convert wind or solar energy into electricity?
- How much would it cost for an average family?
- How long does it take the buyer to pay for what you sell in savings on energy bills?
- Can the buyer sell back extra electricity to the utility company?
- If the company sells passive solar devices, such as hot water heaters, ask the same questions about payback time.
- Can the buyer get any help from state, national, or local governments in terms of cash, loans, or tax breaks?
- Ask where you might go to see houses in which they have installed these devices. Ask for customers who would welcome your questions.

NAME: _____

Student Worksheet

Activity Four

Create a Bike Route Plan

Design a bike route plan or improve an existing plan for your community. For this activity, you will look at the layout of your community and decide which routes people would want to travel by bicycle. Next you will look for routes that do not already have good bike paths and decide which would be best to build first.

First find a map of your community. Street maps will be available online, at gas stations, at book stores, and at libraries. Bike route maps are usually sold at bicycle shops.

With maps in hand, check out the existing bike routes and look for:

- Which ones seem safe
- How well they are marked with signs and on the pavement
- Which dangerous highway crossings have bicycle overpasses
- Which routes are on streets with traffic and which ones are separated from traffic

People will want to bike from where they live to where they work, shop, and go to school. Mark the residential areas and the places to which people are likely to want to ride. Make a note of these trips that can already be made on safe bike routes.

If some trips do not have good bike routes, decide where new ones should be built. Your first choices should be bike paths away from traffic through parks and open space. Along rivers, on levees, and on abandoned railroad tracks are often good routes.

On a community map, mark all the existing bike routes in one color. Mark the new bike routes you are suggesting in another color. Mail it to your mayor.

NAME: _____

Activity Five

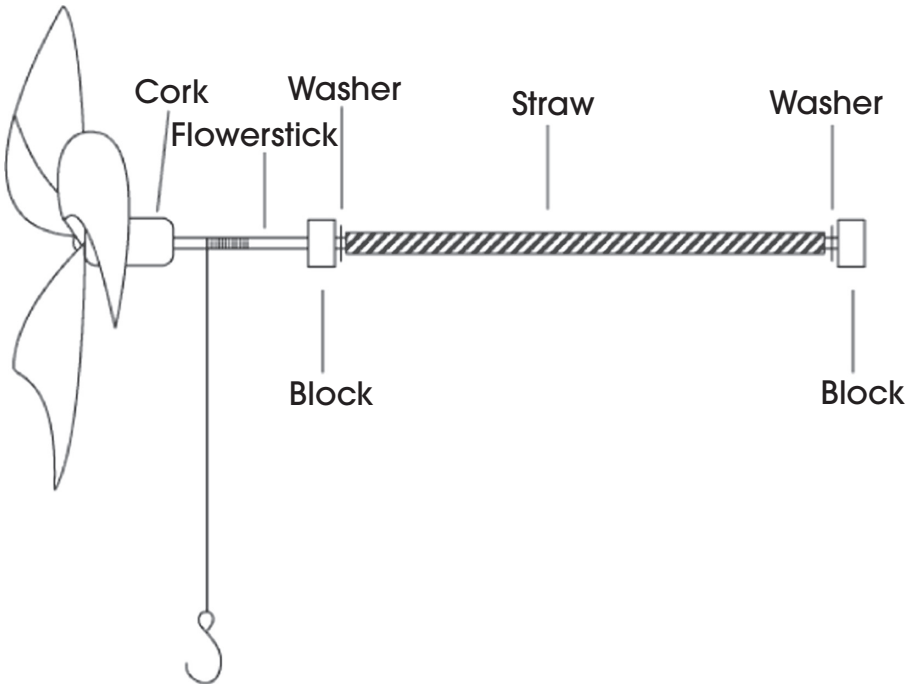
Build a Model Wind Turbine

The goal of this activity is to learn about wind turbines by building a working model of one. Begin by searching the Internet or library for "model wind turbine." You will find many plans ranging from simple to complicated. Your teacher may be able to give you some help and even give you some of the equipment you will need.

Most of the parts and tools for the simplest plans can be found around the house. Some plans use Tinker Toys for most of the parts. All plans will need a set of blades and a generator.

The blades can be as simple as a child's pinwheel. The generator can be a small DC motor, such as the ones in remote control cars. It is also possible to buy model wind turbine kits online or from a hobby store, but they can be fairly expensive.

If you think you would not be able to find all the parts for a wind turbine that generates electricity, there is a simpler possibility. You can build a windmill that changes wind energy into mechanical energy. A design of such a windmill is shown below. This is similar to the old-style windmills that were used before machines and appliances ran on electricity.



NAME: _____

Student Worksheet

Activity Six

Village Life

In this activity, you will learn about village life as it was lived in the past and as it still exists in developing countries. From the information you gather, you will write a short report.

Begin by searching the Internet and library for the following topics: "traditional village," "19th century village," "18th century village," "African village," and "Native village." As you search, you will find a lot of interesting pictures you can put in your report.

Here are some of the questions you can try to answer about village life:

- How did villagers get their food, and where did it grow?
- What energy sources did villagers use?
- How large were villages, and how were the different buildings arranged?
- What did villagers use for transportation?
- Did villages create much trash, and what did they do with it?
- Was the carbon footprint larger or smaller than that of today's communities?
- Why was it larger, or why was it smaller?

These questions all ask about the past, but you will find in your reading that villages in many countries are not much different today.

Now compare old-style village life to life in a modern carbon neutral community. Describe how the life in the old villages and new communities are the same. Describe how they are different.

Publication Listing

SOCIAL STUDIES - Books

ITEM #	TITLE
	DAILY LIFE SKILLS SERIES
CC5790	Daily Marketplace Skills Gr. 6-12
CC5791	Daily Social & Workplace Skills Gr. 6-12
CC5792	Daily Health & Hygiene Skills Gr. 6-12
CC5793	Daily Life Skills Big Book Gr. 6-12
	21ST CENTURY SKILLS SERIES
CC5794	Learning Problem Solving Gr. 3-8
CC5795	Learning Communication & Teamwork Gr. 3-8
CC5796	Learning Skills for Global Competency Gr. 3-8
CC5797	Learning to Learn Big Book Gr. 3-8
	MAPPING SKILLS SERIES
CC5786	Gr. PK-2 Mapping Skills with Google Earth
CC5787	Gr. 3-5 Mapping Skills with Google Earth
CC5788	Gr. 6-8 Mapping Skills with Google Earth
CC5789	Gr. PK-8 Mapping Skills with Google Earth Big Book
	NORTH AMERICAN GOVERNMENTS SERIES
CC5757	American Government Gr. 5-8
CC5758	Canadian Government Gr. 5-8
CC5759	Mexican Government Gr. 5-8
CC5760	Governments of North America Big Book Gr. 5-8
	WORLD GOVERNMENTS SERIES
CC5761	World Political Leaders Gr. 5-8
CC5762	World Electoral Processes Gr. 5-8
CC5763	Capitalism vs. Communism Gr. 5-8
CC5777	World Politics Big Book Gr. 5-8
	WORLD CONFLICT SERIES
CC5511	American Revolutionary War Gr. 5-8
CC5500	American Civil War Gr. 5-8
CC5512	American Wars Big Book Gr. 5-8
CC5501	World War I Gr. 5-8
CC5502	World War II Gr. 5-8
CC5503	World Wars I & II Big Book Gr. 5-8
CC5505	Korean War Gr. 5-8
CC5506	Vietnam War Gr. 5-8
CC5507	Korean & Vietnam Wars Big Book Gr. 5-8
CC5508	Persian Gulf War (1990-1991) Gr. 5-8
CC5509	Iraq War (2003-2010) Gr. 5-8
CC5510	Gulf Wars Big Book Gr. 5-8
	WORLD CONTINENTS SERIES
CC5750	North America Gr. 5-8
CC5751	South America Gr. 5-8
CC5768	The Americas Big Book Gr. 5-8
CC5752	Europe Gr. 5-8
CC5753	Africa Gr. 5-8
CC5754	Asia Gr. 5-8
CC5755	Australia Gr. 5-8
CC5756	Antarctica Gr. 5-8
	WORLD CONNECTIONS SERIES
CC5782	Culture, Society & Globalization Gr. 5-8
CC5783	Economy & Globalization Gr. 5-8
CC5784	Technology & Globalization Gr. 5-8
CC5785	Globalization Big Book Gr. 5-8

SOCIAL STUDIES - Software

ITEM #	TITLE
	MAPPING SKILLS SERIES
CC7770	Gr. PK-2 Mapping Skills with Google Earth
CC7771	Gr. 3-5 Mapping Skills with Google Earth
CC7772	Gr. 6-8 Mapping Skills with Google Earth
CC7773	Gr. PK-8 Mapping Skills with Google Earth Big Box

SCIENCE - Software

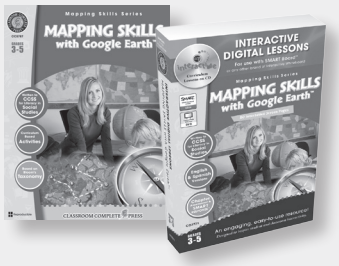
	SPACE AND BEYOND SERIES
CC7557	Solar System Gr. 5-8
CC7558	Galaxies & the Universe Gr. 5-8
CC7559	Travel & Technology Gr. 5-8
CC7560	Space Big Box Gr. 5-8
	HUMAN BODY SERIES
CC7549	Cells, Skeletal & Muscular Systems Gr. 5-8
CC7550	Senses, Nervous & Respiratory Systems Gr. 5-8
CC7551	Circulatory, Digestive & Reproductive Systems Gr. 5-8
CC7552	Human Body Big Box Gr. 5-8
	FORCE, MOTION & SIMPLE MACHINES SERIES
CC7553	Force Gr. 3-8
CC7554	Motion Gr. 3-8
CC7555	Simple Machines Gr. 3-8
CC7556	Force, Motion & Simple Machines Big Box Gr. 3-8

ENVIRONMENTAL STUDIES - Software

	CLIMATE CHANGE SERIES
CC7747	Global Warming: Causes Gr. 3-8
CC7748	Global Warming: Effects Gr. 3-8
CC7749	Global Warming: Reduction Gr. 3-8
CC7750	Global Warming Big Box Gr. 3-8

LANGUAGE ARTS - Software

CC7112	Word Families - Short Vowels Gr. PK-2
CC7113	Word Families - Long Vowels Gr. PK-2
CC7114	Word Families - Vowels Big Box Gr. PK-2
CC7100	High Frequency Sight Words Gr. PK-2
CC7101	High Frequency Picture Words Gr. PK-2
CC7102	Sight & Picture Words Big Box Gr. PK-2
CC7104	How to Write a Paragraph Gr. 3-8
CC7105	How to Write a Book Report Gr. 3-8
CC7106	How to Write an Essay Gr. 3-8
CC7107	Master Writing Big Box Gr. 3-8
CC7108	Reading Comprehension Gr. 5-8
CC7109	Literary Devices Gr. 5-8
CC7110	Critical Thinking Gr. 5-8
CC7111	Master Reading Big Box Gr. 5-8



SCIENCE - Books

ITEM #	TITLE
	HANDS-ON STEAM SCIENCE SERIES
CC4100	Physical Science Gr. 1-5
CC4101	Life Science Gr. 1-5
CC4102	Earth & Space Science Gr. 1-5
CC4103	Hands-On Science Big Book Gr. 1-5
	ECOLOGY & THE ENVIRONMENT SERIES
CC4500	Ecosystems Gr. 5-8
CC4501	Classification & Adaptation Gr. 5-8
CC4502	Cells Gr. 5-8
CC4503	Ecology & The Environment Big Book Gr. 5-8
	MATTER & ENERGY SERIES
CC4504	Properties of Matter Gr. 5-8
CC4505	Atoms, Molecules & Elements Gr. 5-8
CC4506	Energy Gr. 5-8
CC4507	The Nature of Matter Big Book Gr. 5-8
	FORCE & MOTION SERIES
CC4508	Force Gr. 5-8
CC4509	Motion Gr. 5-8
CC4510	Simple Machines Gr. 5-8
CC4511	Force, Motion & Simple Machines Big Book Gr. 5-8
	SPACE & BEYOND SERIES
CC4512	Solar System Gr. 5-8
CC4513	Galaxies & The Universe Gr. 5-8
CC4514	Travel & Technology Gr. 5-8
CC4515	Space Big Book Gr. 5-8
	HUMAN BODY SERIES
CC4516	Cells, Skeletal & Muscular Systems Gr. 5-8
CC4517	Senses, Nervous & Respiratory Systems Gr. 5-8
CC4518	Circulatory, Digestive & Reproductive Systems Gr. 5-8
CC4519	Human Body Big Book Gr. 5-8

ENVIRONMENTAL STUDIES - Books

	MANAGING OUR WASTE SERIES
CC5764	Waste: At the Source Gr. 5-8
CC5765	Prevention, Recycling & Conservation Gr. 5-8
CC5766	Waste: The Global View Gr. 5-8
CC5767	Waste Management Big Book Gr. 5-8
	CLIMATE CHANGE SERIES
CC5769	Global Warming: Causes Gr. 5-8
CC5770	Global Warming: Effects Gr. 5-8
CC5771	Global Warming: Reduction Gr. 5-8
CC5772	Global Warming Big Book Gr. 5-8
	GLOBAL WATER SERIES
CC5773	Conservation: Fresh Water Resources Gr. 5-8
CC5774	Conservation: Ocean Water Resources Gr. 5-8
CC5775	Conservation: Waterway Habitat Resources Gr. 5-8
CC5776	Water Conservation Big Book Gr. 5-8
	CARBON FOOTPRINT SERIES
CC5778	Reducing Your Own Carbon Footprint Gr. 5-8
CC5779	Reducing Your School's Carbon Footprint Gr. 5-8
CC5780	Reducing Your Community's Carbon Footprint Gr. 5-8
CC5781	Carbon Footprint Big Book Gr. 5-8

LITERATURE KITS™ - Books

ITEM #	TITLE
	GRADES 1-2
CC2100	Curious George (H. A. Rey)
CC2101	Paper Bag Princess (Robert N. Munsch)
CC2102	Stone Soup (Marcia Brown)
CC2103	The Very Hungry Caterpillar (Eric Carle)
CC2104	Where the Wild Things Are (Maurice Sendak)
	GRADES 3-4
CC2300	Babe: The Gallant Pig (Dick King-Smith)
CC2301	Because of Winn-Dixie (Kate DiCamillo)
CC2302	The Tale of Despereaux (Kate DiCamillo)
CC2303	James and the Giant Peach (Roald Dahl)
CC2304	Ramona Quimby, Age 8 (Beverly Cleary)
CC2305	The Mouse and the Motorcycle (Beverly Cleary)
CC2306	Charlotte's Web (E.B. White)
CC2307	Owls in the Family (Farley Mowat)
CC2308	Sarah, Plain and Tall (Patricia MacLachlan)
CC2309	Matilda (Roald Dahl)
CC2310	Charlie & The Chocolate Factory (Roald Dahl)
CC2311	Frindle (Andrew Clements)
CC2312	M.C. Higgins, the Great (Virginia Hamilton)
CC2313	The Family Under The Bridge (N.S. Carlson)
CC2314	The Hundred Penny Box (Sharon Mathis)
CC2315	Cricket in Times Square (George Selden)
CC2316	Fantastic Mr Fox (Roald Dahl)
CC2317	The Hundred Dresses (Eleanor Estes)
CC2318	The War with Grandpa (Robert Kimmel Smith)
CC2320	The Chocolate Touch (Patrick Skene Catling)
	GRADES 5-6
CC2500	Black Beauty (Anna Sewell)
CC2501	Bridge to Terabithia (Katherine Paterson)
CC2502	Bud, Not Buddy (Christopher Paul Curtis)
CC2503	The Egypt Game (Zilpha Keatley Snyder)
CC2504	The Great Gilly Hopkins (Katherine Paterson)
CC2505	Holes (Louis Sachar)
CC2506	Number the Stars (Lois Lowry)
CC2507	The Sign of the Beaver (E.G. Speare)
CC2508	The Whipping Boy (Sid Fleischman)
CC2509	Island of the Blue Dolphins (Scott O'Dell)
CC2510	Underground to Canada (Barbara Smucker)
CC2511	Loser (Jerry Spinelli)
CC2512	The Higher Power of Lucky (Susan Patron)
CC2513	Kira-Kira (Cynthia Kadohata)
CC2514	Dear Mr. Henshaw (Beverly Cleary)
CC2515	The Summer of the Swans (Betsy Byars)
CC2516	Shiloh (Phyllis Reynolds Naylor)
CC2517	A Single Shard (Linda Sue Park)
CC2518	Hoot (Carl Hiaasen)
CC2519	Hatchet (Gary Paulsen)
CC2520	The Giver (Lois Lowry)
CC2521	The Graveyard Book (Neil Gaiman)
CC2522	The View From Saturday (E.L. Konigsburg)
CC2523	Hattie Big Sky (Kirby Larson)
CC2524	When You Reach Me (Rebecca Stead)
CC2525	Criss Cross (Lynne Rae Perkins)
CC2526	A Year Down Yonder (Richard Peck)
CC2527	Maniac Magee (Jerry Spinelli)

LITERATURE KITS™ - Books

ITEM #	TITLE
CC2528	From the Mixed-Up Files of Mrs. Basil E. Frankweiler (E.L. Konigsburg)
CC2529	Sing Down the Moon (Scott O'Dell)
CC2530	The Phantom Tollbooth (Norton Juster)
CC2531	Gregor the Overlander (Suzanne Collins)
CC2532	Through the Looking-Glass (Lewis Carroll)
CC2533	Wonder (R.J. Palacio)
CC2534	Freak the Mighty (Rodman Philbrick)
CC2535	Tuck Everlasting (Natalie Babbitt)
	GRADES 7-8
CC2700	Cheaper by the Dozen (Frank B. Gilbreth)
CC2701	The Miracle Worker (William Gibson)
CC2702	The Red Pony (John Steinbeck)
CC2703	Treasure Island (Robert Louis Stevenson)
CC2704	Romeo & Juliet (William Shakespeare)
CC2705	Crispin: The Cross of Lead (Avi)
CC2706	Call It Courage (Armstrong Sperry)
CC2707	The Boy in the Striped Pajamas (John Boyne)
CC2708	The Westing Game (Ellen Raskin)
CC2709	The Cay (Theodore Taylor)
CC2710	The Hunger Games (Suzanne Collins)
CC2712	The Pearl (John Steinbeck)
	GRADES 9-12
CC2001	To Kill A Mockingbird (Harper Lee)
CC2002	Angela's Ashes (Frank McCourt)
CC2003	The Grapes of Wrath (John Steinbeck)
CC2004	The Good Earth (Pearl S. Buck)
CC2005	The Road (Cormac McCarthy)
CC2006	The Old Man and the Sea (Ernest Hemingway)
CC2007	Lord of the Flies (William Golding)
CC2008	The Color Purple (Alice Walker)
CC2009	The Outsiders (S.E. Hinton)
CC2010	Hamlet (William Shakespeare)
CC2011	The Great Gatsby (F. Scott Fitzgerald)
CC2012	The Adventures of Huckleberry Finn (Mark Twain)
CC2013	Macbeth (William Shakespeare)
CC2014	Fahrenheit 451 (Ray Bradbury)
CC2015	The Crucible (Arthur Miller)
CC2016	Of Mice and Men (John Steinbeck)
CC2017	Divergent (Veronica Roth)

LANGUAGE ARTS - Books

CC1110	Word Families - Short Vowels Gr. K-1
CC1111	Word Families - Long Vowels Gr. K-1
CC1112	Word Families - Vowels Big Book Gr. K-1
CC1113	High Frequency Sight Words Gr. K-1
CC1114	High Frequency Picture Words Gr. K-1
CC1115	Sight & Picture Words Big Book Gr. K-1
CC1100	How to Write a Paragraph Gr. 5-8
CC1101	How to Write a Book Report Gr. 5-8
CC1102	How to Write an Essay Gr. 5-8
CC1103	Master Writing Big Book Gr. 5-8
CC1116	Reading Comprehension Gr. 5-8
CC1117	Literary Devices Gr. 5-8
CC1118	Critical Thinking Gr. 5-8
CC1119	Master Reading Big Book Gr. 5-8
CC1106	Reading Response Forms: Gr. 1-2
CC1107	Reading Response Forms: Gr. 3-4
CC1108	Reading Response Forms: Gr. 5-6
CC1109	Reading Response Forms Big Book: Gr. 1-6

MATHEMATICS - Software

ITEM #	TITLE
	PRINCIPLES & STANDARDS OF MATH SERIES
CC7315	Gr. PK-2 Five Strands of Math Big Box
CC7316	Gr. 3-5 Five Strands of Math Big Box
CC7317	Gr. 6-8 Five Strands of Math Big Box

MATHEMATICS - Books

	TASK SHEETS
CC3100	Gr. PK-2 Number & Operations Task Sheets
CC3101	Gr. PK-2 Algebra Task Sheets
CC3102	Gr. PK-2 Geometry Task Sheets
CC3103	Gr. PK-2 Measurement Task Sheets
CC3104	Gr. PK-2 Data Analysis & Probability Task Sheets
CC3105	Gr. PK-2 Five Strands of Math Big Book Task Sheets
CC3106	Gr. 3-5 Number & Operations Task Sheets
CC3107	Gr. 3-5 Algebra Task Sheets
CC3108	Gr. 3-5 Geometry Task Sheets
CC3109	Gr. 3-5 Measurement Task Sheets
CC3110	Gr. 3-5 Data Analysis & Probability Task Sheets
CC3111	Gr. 3-5 Five Strands of Math Big Book Task Sheets
CC3112	Gr. 6-8 Number & Operations Task Sheets
CC3113	Gr. 6-8 Algebra Task Sheets
CC3114	Gr. 6-8 Geometry Task Sheets
CC3115	Gr. 6-8 Measurement Task Sheets
CC3116	Gr. 6-8 Data Analysis & Probability Task Sheets
CC3117	Gr. 6-8 Five Strands of Math Big Book Task Sheets
	DRILL SHEETS
CC3200	Gr. PK-2 Number & Operations Drill Sheets
CC3201	Gr. PK-2 Algebra Drill Sheets
CC3202	Gr. PK-2 Geometry Drill Sheets
CC3203	Gr. PK-2 Measurement Drill Sheets
CC3204	Gr. PK-2 Data Analysis & Probability Drill Sheets
CC3205	Gr. PK-2 Five Strands of Math Big Book Drill Sheets
CC3206	Gr. 3-5 Number & Operations Drill Sheets
CC3207	Gr. 3-5 Algebra Drill Sheets
CC3208	Gr. 3-5 Geometry Drill Sheets
CC3209	Gr. 3-5 Measurement Drill Sheets
CC3210	Gr. 3-5 Data Analysis & Probability Drill Sheets
CC3211	Gr. 3-5 Five Strands of Math Big Book Drill Sheets
CC3212	Gr. 6-8 Number & Operations Drill Sheets
CC3213	Gr. 6-8 Algebra Drill Sheets
CC3214	Gr. 6-8 Geometry Drill Sheets
CC3215	Gr. 6-8 Measurement Drill Sheets
CC3216	Gr. 6-8 Data Analysis & Probability Drill Sheets
CC3217	Gr. 6-8 Five Strands of Math Big Book Drill Sheets
	TASK & DRILL SHEETS
CC3300	Gr. PK-2 Number & Operations Task & Drill Sheets
CC3301	Gr. PK-2 Algebra Task & Drill Sheets
CC3302	Gr. PK-2 Geometry Task & Drill Sheets
CC3303	Gr. PK-2 Measurement Task & Drill Sheets
CC3304	Gr. PK-2 Data Analysis & Probability Task & Drills
CC3306	Gr. 3-5 Number & Operations Task & Drill Sheets
CC3307	Gr. 3-5 Algebra Task & Drill Sheets
CC3308	Gr. 3-5 Geometry Task & Drill Sheets
CC3309	Gr. 3-5 Measurement Task & Drill Sheets
CC3310	Gr. 3-5 Data Analysis & Probability Task & Drills
CC3312	Gr. 6-8 Number & Operations Task & Drill Sheets
CC3313	Gr. 6-8 Algebra Task & Drill Sheets
CC3314	Gr. 6-8 Geometry Task & Drill Sheets
CC3315	Gr. 6-8 Measurement Task & Drill Sheets
CC3316	Gr. 6-8 Data Analysis & Probability Task & Drills