

WINDOWS ON WASTE

ACTIVITY CORRELATIONS TO OHIO'S ACADEMIC CONTENT STANDARDS



OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECYCLING AND LITTER PREVENTION
&
THE OHIO ASSOCIATION OF LITTER PREVENTION
AND RECYCLING PROFESSIONALS

WINDOWS ON WASTE

An Elementary, Interdisciplinary, Environmental Studies
Activity Guidebook About Solid Waste and Environmental Issues

ACTIVITY CORRELATIONS TO OHIO'S ACADEMIC CONTENT STANDARDS

DEVELOPED BY

The Ohio Department of Natural Resources
Division of Recycling and Litter Prevention
In cooperation with
The Ohio Association of Litter Prevention
and Recycling Professionals
and
Ohio Elementary School Teachers

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DISCLAIMER

Project contributors realize that correlating *Windows on Waste* activities to academic content standards is a challenging and subjective process. It is therefore recommended that users consider these correlations as starting points for selecting and using the activities.

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HOW TO USE THIS GUIDE

Windows on Waste was produced in 1999 by the Ohio Department of Natural Resources, Division of Recycling and Litter Prevention. The 36 activities in the guidebook were correlated to Ohio's old fourth and sixth grade Proficiency Test Learning Outcomes. This document correlates the activities with Ohio's new standards, the Academic Content Standards, for grades K-5. Continuing use and future revisions of *Windows on Waste* activities should benefit from these correlations.

Targeting solid waste education to grades K-5 is particularly appropriate, because recycling is specifically addressed in the science standards in grades 1 and 5. See the listing of correlated science standards in the Index at the end of this guide. Standards in math, English language arts and social studies that are correlated to the activities can be found in the Academic Content Standards documents and on the Ohio Department of Education website.

Most, but not all activities in *Windows on Waste* have been correlated to the new standards. Correlated activities are organized by grade level (identified on the header of each page). Far more activities are appropriate for grades 3-5, than grades K-2. Each activity correlation to the standards includes the following:

Lesson number (roman numeral) and **activity number and title**, including **page number** where the activity can be found in *Windows on Waste*.

A chart that includes the following:

Subject: Science (**SC**), Mathematics (**MA**), English Language Arts (**ELA**), Social Studies (**SS**)

Standard: The Academic Content Standard for the subject.

Benchmark: Benchmark (**BM**) letters are provided for Science and Social Studies standards, but only rarely for English Language Arts and Mathematics, because the format of these standards documents made it difficult to identify the benchmark letter accurately.

Indicator(s): Indicator (**IND**) numbers are provided for all subjects.

Activity Steps in the activity procedure, including Extensions (**EXT.**) and Assessment (**ASSESS.**) that provide opportunities to teach to the standard and indicator(s) identified.

Modify: Some indicators are correlated with activity steps with the provision that the steps be modified in order to better correlate with the indicator. A brief explanation is provided.

SAMPLE CHART

Lesson III Activity 2: What Sort of Trash is This Anyway? p. III-14

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	B	4	1-4
SC	SCIENTIFIC INQUIRY	B	5	1-4
SC	SCIENTIFIC INQUIRY	C	6	4
SC	SCIENTIFIC WAYS OF KNOWING	D	All	EXT.
	<i>Modify</i> Discuss environmental career choices.			
ELA	ACQUISITION OF VOCABULARY		1,7,9	5
	<i>Modify</i> Develop word webs for each of the vocabulary that would include the word, student definition, a picture, prefix or suffix where applicable, and student sentence.			

GRADE K

Lesson I Activity 1: The Keys to Garbage p. I-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	1	1-2
	<i>Modify</i> Give students pictures of natural and human-made items to sort.			
SC	SCIENCE AND TECHNOLOGY	B	2	2,5
MA	PATTERNS, FUNCTIONS AND ALGEBRA	A	1	2-7
ELA	ACQUISITION OF VOCABULARY	A	1,2	1
ELA	RESEARCH	A	1	ALL
ELA	COMMUNICATION: ORAL AND VISUAL	A	1-4	ALL

Lesson II Activity 1: Econo-Community p. II-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	ACQUISITION OF VOCABULARY	A	2	2
	<i>Modify</i> Examine words and recycling symbols on waste items brought into class.			
ELA	READING APPLICATIONS: INFORMATIONAL . . .	D	4	3-5
	<i>Modify</i> Reconstruct Econo-Community chart with pictures, then discuss.			
ELA	COMMUNICATIONS	E	5	3-5
	<i>Modify</i> Extend by having students present about a single trash item—where it came from, what they do with it, what happens when they are finished with it.			
SS	ECONOMICS	A	1,2	2, EXT. 2
	<i>Modify</i> "Teacher-Led Inquiry of Economic Terms": do 1,2,3; items 4-8 should be excluded.			
SS	ECONOMICS	A	3	3-5
	<i>Modify</i> Reconstruct Econo-Puzzle chart to make it age appropriate for explaining goods and services and set it up so students can match pictures to categories.			
SS	SKILLS AND METHODS	B	2	2,3-5
	<i>Modify</i> Reconstruct Econo-Community chart using pictures and reduced categories.			
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	B	3	7-8
	<i>Modify</i> Present students with choice to throw away or recycle.			

Lesson XII Activity 1: Fishing for Litter Habits p. XII-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC WAYS OF KNOWING	B	3	1,2, ASSESS. A&B
ELA	PHONEMIC AWARENESS, WORD . . .	B	8	2
	<i>Modify</i> Highlight one-syllable and often heard words; students read highlights as teacher reads rest of words.			
ELA	READING PROCESS: CONCEPTS OF PRINT . . .	CDE	1,6,9	2
	<i>Modify</i> Read statements on fish; question students; students can compare/contrast scenarios.			
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	B	4	1,2
	<i>Modify</i> Make the connection between being a good citizen and not littering.			

Lesson XII Activity 2: A Lot of Litter p. XII-11

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC WAYS OF KNOWING	B	3	4
	<i>Modify</i> Discuss how the characters' actions effected living things and the environment.			
ELA	READING APPLICATIONS: LITERARY TEXT	B	3	3-5,7
	<i>Modify</i> Peer models perform play; discuss; students re-enact play (may need prompts).			

GRADE 1

Lesson I Activity 1: The Keys to Garbage p. I-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SCI	EARTH AND SPACE	D	1-2	1,5,6, ASSESS.1&2
	<i>Modify</i> Sing 3Rs; have students sort plastics by recycling number.			
SCI	PHYSICAL	A	3	1
SCI	SCIENCE AND TECHNOLOGY	A	3	1-7
MA	PATTERNS, FUNCTIONS, AND ALGEBRA	A	1	2,7, ASSES. 2&4, EXT.
MA	DATA ANALYSIS AND PROBABILITY	B	1	2, ASSES. 2&4, EXT.
ELA	READING APPLICATIONS: INFORMATIONAL . . .	D	5	2

Lesson II Activity 1: Econo-Community p. II-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	1	2, EXT.2
	<i>Modify</i> Address choices by examining display items from perspective of purchasing and what to do when product has been used.			
ELA	READING APPLICATIONS: INFORMATIONAL . . .	D	5	3-5
	<i>Modify</i> Reconstruct chart with pictures and discuss.			
ELA	COMMUNICATIONS: ORAL AND VISUAL	E	5	3-5
	<i>Modify</i> Extend by having students present about a single trash item—where it came from, what they do with it, what happens when they are finished with it.			

Lesson XII Activity 1: Fishing for Litter Habits p. XII-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	DATA ANALYSIS AND PROBABILITY	A	3,4,5	3
MA	DATA ANALYSIS AND PROBABILITY	B	7	3
ELA	ACQUISITION OF VOCABULARY	B	4	2
	<i>Modify</i> Highlight one-syllable and often heard words; students read highlights as teacher reads rest of words.			
ELA	READING PROCESS: CONCEPTS OF PRINT . . .	D	5	2
	<i>Modify</i> Read statements on fish; question students; students can compare/contrast scenarios.			
SS	GOVERNMENT	C	4,5	1
	<i>Modify</i> Discuss why littering is against the law and consequences of littering (fines, court, etc.).			

Lesson XII Activity 2: A Lot of Litter p. XII-11

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	READING APPLICATIONS: LITERARY TEXT	B	1,2,3	3-5,7
	<i>Modify</i> Students watch peer models perform play and/or participate as able; students retell story, identify characters, setting and events on teacher-made chart; recite group choral chants.			
SS	SKILLS AND METHODS	A	1	7
	<i>Modify</i> Listen to play performed by older students; discuss.			
SS	SKILLS AND METHODS	C	5	7
	<i>Modify</i> Listen to play performed by older students; discuss.			

Lesson XII Activity 3: Don't Step on Litter p. XII-19

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	NUMBER, NUMBER SENSE AND OPERATIONS		10	4
	<i>Modify</i> On each game card, white out math sentences. Instead, students roll dice and add the numbers, or just roll one die, and then move ahead that many spaces.			
MA	NUMBER, NUMBER SENSE AND OPERATIONS	F	16	4
ELA	READING PROCESS: CONCEPTS OF PRINT . . .	A	2	1-6
	<i>Modify</i> Preview new vocabulary before playing game.			
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	B	5	Add step (see Modify)
	<i>Modify</i> The teacher observes students while they are playing the game; noting if they are playing fairly and are being honest and respecting the "rights" of others. Follow-up with discussion of fairness.			

GRADE 2

Lesson I Activity 1: The Keys to Garbage p. I-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SCI	SCIENCE AND TECHNOLOGY	A	1	4
	<i>Modify</i> Describe risks and benefits of using incineration as a solution to waste volume.			
SCI	SCIENTIFIC INQUIRY	A	1-3	1,3,5
MA	PATTERNS, FUNCTIONS, AND ALGEBRA	D	4	2,6
	<i>Modify</i> Collect many human-made and natural items and have students sort into two groups. Students measure them (length, weight, etc.) and record their findings on charts/graphs. Students make up story problems using the sorted items.			
MA	MEASUREMENT	B	1	2,6
	<i>Modify</i> See "Patterns, Functions, and Algebra" modification above.			
MA	DATA ANALYSIS AND PROBABILITY	ABC	1,2,4	2,6
	<i>Modify</i> See "Patterns, Functions, and Algebra" modification above.			
ELA	ACQUISITION OF VOCABULARY	A	3	2,6
	<i>Modify</i> Construct in small groups or whole class matching game pictures of items and word cards for each item; have students match them up.			
ELA	ACQUISITION OF VOCABULARY	E	10	1
ELA	WRITING PROCESS	C	12	1,7
	<i>Modify</i> Construct word wall of all new vocabulary words; put some on spelling word list.			
ELA	RESEARCH	A	1,5	4,5,7
ELA	RESEARCH	B	6	7

Lesson II Activity 1: Econo-Community p. II-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	1	3-7
	<i>Modify</i> Emphasize alternative uses in Step 6.			
ELA	ACQUISITION OF VOCABULARY	A	3	4
	<i>Modify</i> Have students classify a variety of words by goods, services, resources, including associated pictures.			
ELA	COMMUNICATIONS: ORAL AND VISUAL	E	8	3-5
	<i>Modify</i> Extend by having students present about a single trash item—where it came from, what they do with it, what happens when they are finished with it.			

Lesson XII Activity 1: Fishing for Litter Habits p. XII-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	DATA ANALYSIS AND PROBABILITY	B	2,4	3
SC	SCIENTIFIC WAYS OF KNOWING	B	3	1,2, ASSESS. A&B
ELA	ACQUISITION OF VOCABULARY	B	4	2
	<i>Modify</i> Highlight one-syllable and often heard words; students read highlights as teacher reads rest of words.			
ELA	READING PROCESS: CONCEPTS OF PRINT . . .	D	3	2
	<i>Modify</i> Read statements on fish; question students; students can compare/contrast scenarios.			

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	GOVERNMENT	C	5	1
	<i>Modify</i> Discuss why littering is against the law and focus on consequences of littering (fines, court, etc.)			

Lesson XII Activity 2: A Lot of Litter p. XII-11

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	READING APPLICATIONS: LITERARY TEXT	B	2-5	3-5,7
	<i>Modify</i> Students watch peer models perform play and/or participate as able; students retell story, identify characters, setting and events on teacher-made chart; recite group choral chants.			
SS	GOVERNMENT	A	2	3
SS	SKILLS AND METHODS	A	1	7
	<i>Modify</i> Listen to play performed by older students; discuss			

Lesson XII Activity 3: Don't Step on Litter p. XII-19

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	NUMBER, NUMBER SENSE AND OPERATIONS	H	6	4
MA	NUMBER, NUMBER SENSE AND OPERATIONS	GH	10	4
ELA	READING PROCESS: CONCEPTS OF PRINT . . .	A	1	1-6
	<i>Modify</i> Preview new vocabulary before playing game.			
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	B		Add step (see Modify)
	<i>Modify</i> The teacher observes students while they are playing the game, noting if they are playing fairly and are being honest and respecting the "rights" of others. Follow-up with discussion of fairness.			

GRADE 3

Lesson I Activity 1: The Keys to Garbage p. I-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC INQUIRY	B	3,5	2,3, ASSESS. 2&3, EXT.
MA	PATTERNS, FUNCTIONS, AND ALGEBRA		7	2-4, 6,7
MA	DATA ANALYSIS AND PROBABILITY		1,4,6	2-4, 6,7, ASSESS. 2&3
ELA	ACQUISITION OF VOCABULARY		1	7
ELA	ACQUISITION OF VOCABULARY		8	1,2
	<i>Modify</i> Use resources to define.			
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		6	2-7
ELA	READING APPLICATIONS		4	

Lesson I Activity 2: Garbage Data Pie p. I-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2,3	See Modify
	<i>Modify</i> Benchmark inferred and can be included in discussion.			
SC	SCIENTIFIC INQUIRY	B	2,3	4-9, ASSESS. 1
SC	SCIENTIFIC INQUIRY	B	5	4,5,7,8, ASSESS.1&2 EXT. 1&3
MA	DATA ANALYSIS AND PROBABILITY		1	EXT. 1
MA	DATA ANALYSIS AND PROBABILITY		3	5,7, ASSESS. 1
MA	DATA ANALYSIS AND PROBABILITY		6	4,5,7,9, ASSESS.1&2, EXT. 1&3
MA	DATA ANALYSIS AND PROBABILITY		9	EXT. 3

Lesson I Activity 3: It Takes A Big Hole p. I-24

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC INQUIRY	B	2,3,5	2-5, ASSESS.
MA	NUMBER, NUMBER SENSE, AND OPERATIONS		14	4,5
MA	MEASUREMENT		1,2,6	All
MA	MEASUREMENT		7	4-7

Lesson II Activity 1: Econo-Community p. II-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	B	2,3	1-3,7
SS	SKILLS AND METHODS	B	4	3,4
SS	SKILLS AND METHODS	C	5	3,4
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1a2c2g	EXT.
ELA	READING APPLICATIONS: INFORMATIONAL . . .		4	3-5

Lesson II Activity 2: Business Boxes p. II-16

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	B	4	4
	<i>Modify</i> As students are constructing their boxes, have them discuss the advantages and disadvantages of specialization and division of labor per labor items in their boxes.			

Lesson II Activity 3: Enterprising Recycling p. II-25

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	B	4	Preparation, 7,8
	<i>Modify</i> As students are constructing their boxes, have them discuss the advantages and disadvantages of specialization and division of labor per labor items in their boxes.			
SS	SKILLS AND METHODS	A	1	8
MA	NUMBER, NUMBER SENSE, AND OPERATIONS		14	Part B: 2,3

Lesson III Activity 2: What Sort of Trash is This Anyway? p. III-14

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	B	4	1-4
SC	SCIENTIFIC INQUIRY	B	5	1-4
SC	SCIENTIFIC INQUIRY	C	6	4
SC	SCIENTIFIC WAYS OF KNOWING	D	All	EXT.
	<i>Modify</i> Discuss environmental career choices.			
ELA	ACQUISITION OF VOCABULARY		1,7,9	5
	<i>Modify</i> Develop word webs for each of the vocabulary that would include the word, student definition, a picture, prefix or suffix where applicable, and student sentence.			

Lesson IV Activity 1: Lifecycle Bingo p. IV-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2,3	1,2,5 ASSESS. 2
ELA	ACQUISITION OF VOCABULARY		1	2, ASSESS. 2
	<i>Modify</i> Add to Procedures the following: Teachers review key words that will help students determine the step of the process (ex., fuel <u>used</u> = energy input; recycled aluminum cans <u>are melted</u> = process; solid waste <u>is trucked</u> = transportation energy) by highlighting verb phrases.			
ELA	READING APPLICATIONS: INFORMATIONAL . . .		4,5	2, ASSESS. 2
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1a	1,2,5, ASSESS. 2

Lesson V Activity 1: The Great Cycle p. V-10

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	A	1	2
ELA	ACQUISITION OF VOCABULARY		1	2,3
ELA	ACQUISITION OF VOCABULARY		9	2,3

Lesson V Activity 2: Bio-What? That's Biodegradation! p. V-17

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2	2,4,9,10, EXT.
SC	SCIENTIFIC INQUIRY	B	2,3,5	7
SC	SCIENTIFIC INQUIRY	C	6	7
SC	SCIENTIFIC WAYS OF KNOWING	B	1	5
SC	SCIENTIFIC WAYS OF KNOWING	C	2	7
ELA	READING PROCESS: CONCEPTS OF PRINT ...		1,7	PART B: 1-3
ELA	WRITING PROCESS		2	PART B: 3
MA	DATA ANALYSIS AND PROBABILITY		1	7

Lesson V Activity 3: Compost Critters p. V-21

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	4	PART B: 3-5
SC	EARTH AND SPACE	C	5	PART B: 2-6
SC	LIFE	A	1	PART A: 2-4,6
SC	LIFE	B	2,3	PART A: 8, EXT. 3
SC	SCIENTIFIC INQUIRY	A	1	PART B: 3,5
SC	SCIENTIFIC WAYS OF KNOWING	C	2	PART B: 3
MA	MEASUREMENT		1a	7
MA	MEASUREMENT		6	7
MA	DATA ANALYSIS		1	7
ELA	ACQUISITION OF VOCABULARY		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		6	PROC. A: 2-4, PART B: 1
ELA	READING APPLICATIONS: INFORMATIONAL ...		1	PART B: 1
ELA	RESEARCH		4	PART B: 1
ELA	RESEARCH		5	EXT. 3

Lesson V Activity 4: Meet the YIMBYs p. V-28

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	4,6	4-6, EXT. 2
SC	LIFE	B	2	4
SC	SCIENCE AND TECHNOLOGY	A	1	4,5, EXT.1&2
SC	SCIENCE AND TECHNOLOGY	B	4,5	4,5, EXT. 1&2
ELA	WRITING APPLICATIONS		5	EXT. 5

Lesson V Activity 5: Compost Jars p. V-33

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	4,5,6	PART A:1-3 B:3-9,EXT.1,2
SC	LIFE	C	6	EXT.1
SC	SCIENCE AND TECHNOLOGY	A	2	EXT. 3-5
SC	SCIENCE AND TECHNOLOGY	B	4,5	ASSES.1-3
SC	SCIENTIFIC INQUIRY	A	1	PART B: 13
SC	SCIENTIFIC INQUIRY	B	2,3,5	PART B: 13,14
SC	SCIENTIFIC INQUIRY	C	4,6	PREP A&B, PART A: 3

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC WAYS OF KNOWING	B	1	PART C: 3
SC	SCIENTIFIC WAYS OF KNOWING	C	2	PART B: 13,14, EXT. 2-5
SC	SCIENTIFIC WAYS OF KNOWING	D	3,4,5	EXT. 3
ELA	WRITING PROCESS		1	EXT. 3
ELA	WRITING PROCESS		1,2	EXT. 3
ELA	RESEARCH		1,3,7	EXT. 3
MA	MEASUREMENT		1a	PART B: 5,7,9,13
MA	MEASUREMENT		1d,4	13
MA	MEASUREMENT		5	PART B: 5,7,8,9,13
MA	DATA ANALYSIS		1,6,9	PART B:13,14, PART A:12

Lesson VI Activity: Separation Mania p. VI-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	C	3,4	1-4,6,7, EXT. 2
SC	SCIENCE AND TECHNOLOGY	A	1,2,3	All, including ASSES.
SC	SCIENCE AND TECHNOLOGY	B	4,5	All
SC	SCIENTIFIC INQUIRY	A	1	3,4, EXT. 1
	<i>Modify</i> Present each group with a worksheet with all the steps for scientific inquiry and have them fill it in before attempting to collect their items from the MRF.			
SC	SCIENTIFIC INQUIRY	B	5	3,4,6,9; Modify 7,8,9,10, EXT.1
	<i>Modify</i> Students evaluate the success of the plan and how it might be revised.			
SC	SCIENTIFIC INQUIRY	C		7,8,9
SS	SKILLS AND METHODS	D		All
MA	DATA ANALYSIS			7
ELA	COMMUNICATION: ORAL AND VISUAL		8	9,10
	<i>Modify</i> Have each group orally present the results of their trial run with scientific explanations.			

Lesson VII Activity 1: Landfill Lingo p. VII-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	1,2
ELA	READING PROCESS: CONCEPTS OF PRINT ...		7	1,2
ELA	READING APPLICATIONS: INFORMATIONAL ...		3	2
ELA	READING APPLICATIONS: INFORMATIONAL ...		5	2,4
SC	SCIENCE AND TECHNOLOGY	A	2	2

Lesson VII Activity 2: Does Your Soil Leak? p. VII-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5	2
SC	SCIENTIFIC INQUIRY	B	2	2,3
MA	MEASUREMENT		6	2
MA	DATA ANALYSIS		1	2
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	1

Lesson VII Activity 3: Finer Liner p. VII-16

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2,3	7
SC	SCIENCE AND TECHNOLOGY	B	4,5	3,8
SC	SCIENTIFIC INQUIRY	B	2	6

Lesson VII Activity 4: Life . . . Without Pollution Prevention p. VII-18

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	C	6	8
SC	SCIENCE AND TECHNOLOGY	A	2	8
SC	SCIENTIFIC INQUIRY	B	2,3,5	6-8
SC	SCIENTIFIC WAYS OF KNOWING	C	2	6-8
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		7	10
ELA	READING APPLICATIONS: INFORMATIONAL . . .		4	6,7

Lesson VIII Activity 1: Show'Em Sherlock p. VIII-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	RESEARCH		2,3	PART B: 6

Lesson VIII Activity 2: Mining and Recycling p. VIII-19

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2	PART A: 2
SC	SCIENCE AND TECHNOLOGY	B	4	PART B: 3
SC	SCIENTIFIC INQUIRY	B	2	PART B
<i>Modify:</i> Discuss the cookie mining process in light of the indicators.				
MA	NUMBER, NUMBER SENSE AND ALGEBRA		12,14	PART B: 5
MA	MEASUREMENT		3	PART B: 5
MA	DATA ANALYSIS AND PROBABILITY		9	PART B: 5

Lesson IX Activity 3: Trash Around the World p. IX-11

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1	1-3
SS	SKILLS AND METHODS	B	3,4	4-6
SS	SKILLS AND METHODS	C	5,9,8	4-6
SS	SKILLS AND METHODS	D	6	1-6
MA	DATA ANALYSIS AND PROBABILITIES		3	4-6
SC	SCIENCE AND TECHNOLOGY	A	2,3	2,3
SC	SCIENTIFIC INQUIRY	B	3	4-6
ELA	READING PROCESS: CONCEPTS OF PRINT		7	4-6
ELA	READING APPLICATIONS: INFORMATIONAL . . .		4	4-6

Lesson X Activity 1: The “Costly” Thing p. X-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2	4,5
ELA	READING PROCESS: CONCEPTS OF PRINT ...		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		3	5
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	2,4
ELA	READING APPLICATIONS: INFORMATIONAL ...		4	5

Lesson X Activity 2: Pollution on the Move p. X-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	C	6	All
SC	SCIENCE AND TECHNOLOGY	A	2	All
ELA	READING PROCESS: CONCEPTS OF PRINT ...		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	4,5
ELA	READING PROCESS: CONCEPTS OF PRINT ...		6	ASSESS. 3
ELA	READING APPLICATIONS: INFORMATIONAL ...		4	4,5

Lesson XI Activity: Home, Safe Home p. XI-4

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	2,3	PART A:2-4; PART B: 2,3 ASSESS. 2,3; EXT.1-5
SC	SCIENCE AND TECHNOLOGY	B	4,5	PART A: 4, PART C: 1-3
SC	SCIENTIFIC INQUIRY	C	4,6	PART A, PART B, EXT 1,2
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1a	All
ELA	ACQUISITION OF VOCABULARY		1	ASSESS. 1
ELA	RESEARCH		1-7	EXT. All
ELA	WRITING PROCESS		3,9, 14,16	ASSESS. 3

Lesson XIV Activity: Journey of a Garbage Bill p. XIV-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	GEOGRAPHY	C	7	3-10
	Modify: Discuss how handling solid waste changes our environment. Add to step 9, “9e” to address the question: Why did this bill need to be written?			
SS	GOVERNMENT	A	1	1-10
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1,2	EXT.
ELA	COMMUNICATION: ORAL AND VISUAL		8	5-7
ELA	ACQUISITION OF VOCABULARY		1	5
ELA	ACQUISITION OF VOCABULARY		9	5
ELA	WRITING APPLICATIONS		3	EXT.

GRADE 4

Lesson I Activity 1: The Keys to Garbage p. I-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	2
MA	DATA ANALYSIS AND PROBABILITY		1	2-4, 6,7
MA	DATA ANALYSIS AND PROBABILITY		2	2-4, 6
MA	DATA ANALYSIS AND PROBABILITY		5	6,7, ASSESS. 2&3
ELA	ACQUISITION OF VOCABULARY		1	1,2
ELA	ACQUISITION OF VOCABULARY		9	1,2
<i>Modify</i> Use resources to define terms.				

Lesson I Activity 2: Garbage Data Pie p. I-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	2,3,6,7,9, ASSESS. 1&2
SC	SCIENTIFIC INQUIRY	C	6	EXT. 1
SC	SCIENTIFIC WAYS OF KNOWING	C	2	EXT. 1
MA	DATA ANALYSIS AND PROBABILITY		1	EXT. 1
MA	DATA ANALYSIS AND PROBABILITY		2	4,5,7,9, ASSESS.1&2, EXT. 1&3
MA	DATA ANALYSIS AND PROBABILITY		4	5-9, ASSESS. 1, EXT. 1&3
MA	DATA ANALYSIS AND PROBABILITY		5	EXT. 1
MA	DATA ANALYSIS AND PROBABILITY		9	EXT. 3

Lesson I Activity 3: It Takes A Big Hole p. I-24

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	2,3
MA	NUMBER, NUMBER SENSE, AND OPERATIONS		14	4,5
MA	MEASUREMENT		1,2,3	All
MA	MEASUREMENT		6	4-7

Lesson II Activity 1: Econo-Community p. II-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	1	3,5,6
<i>Modify</i> Discuss the environmental opportunity costs of not recycling, reducing, reusing.				
SS	SKILLS AND METHODS	B	7	3,4
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1d	EXT.
ELA	READING APPLICATIONS: INFORMATIONAL . . .		4	7
<i>Modify</i> Add terms cause and effect.				
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	6-8
ELA	COMMUNICATION: ORAL AND VISUAL		1,2	2-8
<i>Modify</i> Indicators met by completion of Econo-Puzzle and answering "Follow-up Questions."				

Lesson II Activity 2: Business Boxes p. II-16

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	1	PART B: 4
	<i>Modify</i> Relate discussion of land, labor and capital to productive resources and discuss opportunity costs of landfill disposal vs. recycling.			

Lesson II Activity 3: Enterprising Recycling p. II-25

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	1	PART A: 3
	<i>Modify</i> Relate discussion of land, labor and capital to productive resources and discuss opportunity costs of landfill disposal vs. recycling.			
SS	ECONOMICS	B	3	PART A: 7-8, PART B: 5
MA	NUMBER, NUMBER SENSE, AND OPERATIONS		14	PART B: 2,3

Lesson III Activity 1: Papermaking p. III-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	A	1	PART A: 1-7
SC	SCIENTIFIC WAYS OF KNOWING	C	2	PART A: 2
	<i>Modify</i> Reference paper making groups handout.			
SS	GEOGRAPHY			PART A: 2
	<i>Modify</i> Discussed during the introduction.			
SS	ECONOMICS	A	1	PART B: 3-5
MA	NUMBER, NUMBER SENSE AND OPERATIONS		12	PART B: 3-7
LA	WRITING APPLICATIONS		5	EXT.
	<i>Modify</i> Use the paper made by the students to make the cover for a journal about the activity.			

Lesson III Activity 2: What Sort of Trash is This Anyway? p. III-14

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	1-4
SC	SCIENCE AND TECHNOLOGY	B	3	1-4
SC	SCIENTIFIC WAYS OF KNOWING	C	2	3-4
	<i>Modify</i> Have students complete a T-chart: paper/nonpaper.			
ELA	ACQUISITION OF VOCABULARY		1,7,9	5
	<i>Modify</i> Develop word webs for each of the vocabulary that would include the word, student definition, a picture, prefix or suffix where applicable, and student sentence.			

Lesson IV Activity 1: Lifecycle Bingo p. IV-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	1,2,5 ASSESS.
SC	PHYSICAL	B	3,4	See Modify
<i>Modify</i> Extend by having students research melting temperatures in recycling process.				
ELA	ACQUISITION OF VOCABULARY		1	2, ASSESS.
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5,6	2, ASSESS.
SS	ECONOMICS	A	1	1,2,5, ASSESS.
SS	GEOGRAPHY	B	6,7	1,2,5, ASSESS.
<i>Modify</i> Use a natural resources and mining map of Ohio and the Great Lakes region.				

Lesson V Activity 1: The Great Cycle p. V-10

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	A	1	2
ELA	WRITING APPLICATIONS		1	EXT.
ELA	ACQUISITION OF VOCABULARY		1	2,3
ELA	ACQUISITION OF VOCABULARY		9	2,3
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		1	4
<i>Modify</i> Read text to class and put on overhead to point out bold words.				

Lesson V Activity 2: Bio-What? That's Biodegradation! p. V-17

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	B	10	2-4
SC	PHYSICAL	B	3	9
SC	SCIENTIFIC INQUIRY	B	2	7
SC	SCIENTIFIC INQUIRY	C	3	7
SC	SCIENTIFIC WAYS OF KNOWING	B	3	7
SC	SCIENTIFIC WAYS OF KNOWING	C	2,4	7
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		1,7	1-3
ELA	WRITING PROCESS		1,2	PART B: 3
MA	DATA ANALYSIS AND PROBABILITY		1,2	7

Lesson V Activity 3: Compost Critters p. V-21

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	B	10	PART A: 4,5
SC	LIFE	A	1	PART A: 2-4,6
SC	LIFE	A	5	PART A: 8
<i>Modify</i> After selecting organisms, have students tell how their own organism interacts with other classmate's organisms.				
SC	LIFE	B	2,3	PART A: 2,3
SC	PHYSICAL	A	1,2	PART A: 5 PART B: 1-3, 5
SC	PHYSICAL	B	3	PART B: 3,5
SC	PHYSICAL	D	5	PART A: 5
SC	SCIENTIFIC INQUIRY	A	1	PART B: 3,5
SC	SCIENTIFIC WAYS OF KNOWING	A	1	PART B: 5, EXT. 2

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC WAYS OF KNOWING	C	2,4	PART B: 3
MA	DATA ANALYSIS		1	7
ELA	ACQUISITION OF VOCABULARY		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		4	PART B: 1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	PART B: 1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		7	PART B: 6
ELA	READING APPLICATIONS: INFORMATIONAL ...		1	PART B: 1
ELA	READING APPLICATIONS: INFORMATIONAL ...		3	PART B: 1
ELA	READING APPLICATIONS: INFORMATIONAL ...		5	2,3,4

Lesson V Activity 4: Meet the YIMBYs p. V-28

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	B	2	4
SC	PHYSICAL	A	1,2	5,6
SC	PHYSICAL	B	3,4	4,5
SC	PHYSICAL	D	5	4,5, EXT. 1
SC	SCIENCE AND TECHNOLOGY	A	1,2	4,5, EXT. 1&2
ELA	WRITING APPLICATIONS		5	EXT. 5

Lesson V Activity 5: Compost Jars p. V-33

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	A	5	PART B: 1,2,6,7
SC	LIFE	B	2	EXT.1
SC	PHYSICAL	B	3,4	PART B: 1-12
SC	PHYSICAL	D	5	PART B: 13,14, EXT. 2
SC	SCIENCE AND TECHNOLOGY	A	1	EXT. 3-5
SC	SCIENTIFIC INQUIRY	A	1	PART B: 13
SC	SCIENTIFIC INQUIRY	C	4,5,6	PART B: 1
SC	SCIENTIFIC WAYS OF KNOWING	B	3	PART C: 3
SC	SCIENTIFIC WAYS OF KNOWING	C	2	PART B: 13,14, EXT. 2-5
ELA	RESEARCH		1,2	EXT. 3
MA	DATA ANALYSIS		2	PART A: 2, PART B: 13,14

Lesson VI Activity: Separation Mania p. VI-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	1-4,6,7, EXT.1, 2
SC	SCIENCE AND TECHNOLOGY	A	1,2	All, including ASSES.
SC	SCIENCE AND TECHNOLOGY	B	3	All
SC	SCIENTIFIC INQUIRY	A	1	3,4, EXT. 1
	Modify Present each group with a worksheet with all the steps for scientific inquiry and have them fill it in before attempting to collect their items from the MRF.			
SC	SCIENTIFIC INQUIRY	B	2	3,4,6,9; Modify 7,8,9,10, EXT.1
	Modify Students evaluate the success of the plan and how it might be revised.			
SC	SCIENTIFIC INQUIRY	C	3	3-6
SS	SKILLS AND METHODS	D	All	All

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	DATA ANALYSIS		4	7
	<i>Modify</i> Have groups construct different types of charts and compare data representation.			
ELA	COMMUNICATION: ORAL AND VISUAL		8	9,10
	<i>Modify</i> Have each group orally present the results of their trial run with scientific explanations.			

Lesson VII Activity 1: Landfill Lingo p. VII-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	ACQUISITION OF VOCABULARY		1	2-4
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		2	ASSESS. 1
SC	SCIENCE AND TECHNOLOGY	A	1	5

Lesson VII Activity 2: Does Your Soil Leak? p. VII-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	MEASUREMENT		6	3
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		5	1

Lesson VII Activity 3: Finer Liner p. VII-16

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	B	3	3,4,6

Lesson VII Activity 4: Life . . . Without Pollution Prevention p. VII-18

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC INQUIRY	C	4,5	9
SC	SCIENTIFIC WAYS OF KNOWING	C	2,4	6-8
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		5	10
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	6,7

Lesson VIII Activity 1: Show'Em Sherlock p. VIII-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	PART A: 5-6, PART B: 3
ELA	RESEARCH		2,3	PART B: 6
ELA	RESEARCH		4	PART B: 2-3

Lesson VIII Activity 2: Mining and Recycling p. VIII-19

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
MA	NUMBER, NUMBER SENSE AND ALGEBRA		12,14	PART B: 5

Lesson IX Activity 3: Trash Around the World p. IX-11

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	SKILLS AND METHODS	C	5,9,8	4-6
SS	SKILLS AND METHODS	B	7	4-6
SS	SKILLS AND METHODS	D	10	1-6
MA	DATA ANALYSIS AND PROBABILITIES		2,5	4-6
SC	SCIENCE AND TECHNOLOGY	A	2	2,3
ELA	READING PROCESS: CONCEPTS OF PRINT		6,7	4-6
ELA	READING APPLICATIONS: INFORMATIONAL ...		5	4-6
ELA	RESEARCH		3	4-6

Lesson X Activity 1: The “Costly” Thing p. X-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	B	3	2, EXT. 3
SC	SCIENTIFIC INQUIRY	B	2	EXT. 2
ELA	READING PROCESS: CONCEPTS OF PRINT ...		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		3	5
ELA	READING APPLICATIONS: INFORMATIONAL ...		5	5

Lesson X Activity 2: Pollution on the Move p. X-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	GEOGRAPHY	C	9	2,3
ELA	READING PROCESS: CONCEPTS OF PRINT ...	A	1	1
ELA	READING APPLICATIONS: INFORMATIONAL ...		5	4,5

Lesson XI Activity: Home, Safe Home p. XI-4

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	PHYSICAL	A	2	1, EXT. 2
	<i>Modify</i> Demonstrate a reactive chemical with vinegar and baking soda; add "chemical change," with definition, to vocabulary.			
SC	SCIENTIFIC INQUIRY	C	3-6	EXT. 2
	<i>Modify</i> Plan and conduct an experiment in the classroom that would test and compare an alternative cleaning method to a traditional product use.			
MA	NUMBER, NUMBER SENSE AND OPERATIONS		12	EXT. 3
	<i>Modify</i> Utilize group activity, could be a differentiated activity for higher performing students.			
MA	MEASUREMENT		6	EXT. 3
	<i>Modify</i> Utilize group activity, could be a differentiated activity for higher performing students.			
MA	DATA ANALYSIS		4	EXT. 3
SS	GEOGRAPHY	C	9d	EXT.
	<i>Modify</i> Connect to information in a timeline of agricultural methods; differentiate instruction.			
ELA	ACQUISITION OF VOCABULARY		1	PART A: 1
ELA	RESEARCH		1-6	EXT.
ELA	READING APPLICATIONS: INFORMATIONAL . . .		4,5	PART A: 3, PART B: 1-3, PART C: 3, EXT. 5
	<i>Modify</i> Use a graphic organizer that tracks cause and effect.			
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		6	PART A: 3, PART B: 1-3, PART C: 3, EXT. 5
ELA	WRITING PROCESS		3,4, 14,16	ASSESS. 3
	<i>Modify</i> Have students design a brochure.			

Lesson XIV Activity: Journey of a Garbage Bill p. XIV-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	GEOGRAPHY	C	9	3-10
	<i>Modify</i> : Discuss how handling solid waste changes our environment. Add to step 9, "9e" to address the question: Why did this bill need to be written?			
SS	GOVERNMENT	A	1	1-10
SS	SKILLS AND METHODS	B	6	5,9
SS	CITIZENSHIP RIGHTS AND RESPONSIBILITIES	A	1	EXT.
ELA	COMMUNICATION: ORAL AND VISUAL		1	8-9
ELA	COMMUNICATION: ORAL AND VISUAL		2	8-9
ELA	COMMUNICATION: ORAL AND VISUAL		3	8-9
ELA	COMMUNICATION: ORAL AND VISUAL		7	1-10
ELA	COMMUNICATION: ORAL AND VISUAL		8	5-7
ELA	ACQUISITION OF VOCABULARY		1	5
ELA	ACQUISITION OF VOCABULARY		9	5
ELA	WRITING APPLICATIONS		3	EXT.



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Lesson I Activity 1: The Keys to Garbage p. I-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5,6	See Modify
<i>Modify</i> Add procedure step by copying this indicator for discussion.				
SC	SCIENCE AND TECHNOLOGY	A	1	3
MA	DATA ANALYSIS AND PROBABILITY		3	6, ASSESS. 2-4, EXT.
MA	DATA ANALYSIS AND PROBABILITY		4	6, ASSESS. 2-4, EXT.
ELA	ACQUISITION OF VOCABULARY		1	1,2
ELA	ACQUISITION OF VOCABULARY		8	1,2
<i>Modify</i> Use resources to define terms.				

Lesson I Activity 2: Garbage Data Pie p. I-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5	See Modify
<i>Modify</i> Add a procedure step by copying this indicator for discussion.				
SC	LIFE	C	6	1
SC	SCIENCE AND TECHNOLOGY	A	1	See Modify
<i>Modify</i> Add a procedure step by copying this indicator for discussion.				
SC	SCIENTIFIC INQUIRY	C	6	EXT. 1
SC	SCIENTIFIC WAYS OF KNOWING	B	3,4	EXT. 1
MA	DATA ANALYSIS AND PROBABILITY		1,2	4,5,7ASSESS.1,2 EXT.1,3
MA	DATA ANALYSIS AND PROBABILITY		4	EXT. 1,3
MA	DATA ANALYSIS AND PROBABILITY		5	EXT. 3

Lesson I Activity 3: It Takes A Big Hole p. I-24

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	C	6	2-7, ASSESS.
SC	SCIENCE AND TECHNOLOGY	A	1	4-7, ASSESS.
SC	SCIENTIFIC INQUIRY	B	2	2
MA	MEASUREMENT		4	All
MA	PATTERNS, FUNCTIONS AND ALGEBRA		5	6
MA	PATTERNS, FUNCTIONS AND ALGEBRA		6	4-7

Lesson II Activity 1: Econo-Community p. II-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	C	5	See Modify
<i>Modify</i> Add step 9: Discuss market forces of supply and demand per a recyclable material.				
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	2-8
ELA	COMMUNICATION: ORAL AND VISUAL		1,2	1-8

Lesson II Activity 2: Business Boxes p. II-16

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	2	PART A: 2,4 PART B: 2
	<i>Modify</i> Add additional step to address what to produce and how to produce it using the Econo-Community handout, "Starting Your Own Recycling Business."			
SS	ECONOMICS	B	3	See Modify
	<i>Modify</i> Add step 5 to PART B. Discuss how specialization, capital goods and division of labor affect productive capacity.			

Lesson II Activity 3: Enterprising Recycling p. II-25

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	ECONOMICS	A	2	PART A: 3
	<i>Modify</i> Add additional step to address what to produce and how to produce it using the Econo-Community handout, "Starting Your Own Recycling Business."			
SS	ECONOMICS	B	3	PART A: 4-6
	<i>Modify</i> Explain/discuss how the productive capacity of a recycling business depends on education, capital goods and the division of labor.			

Lesson III Activity 1: Papermaking p. III-6

SUBJECT	STANDARD		IND	ACTIVITY STEPS
SC	EARTH AND SPACE		5,6	PART A: 2-7
SC	LIFE		1	PART A: 2
	<i>Modify</i> Make sure students understand the connection between trees and photosynthesis.			
SC	LIFE	C	6	PART A: 2
SC	SCIENCE AND TECHNOLOGY	A	1	PART A: 2
	<i>Modify</i> Expand the introduction to include positive, neutral and negative impacts of human activity.			
LA	WRITING APPLICATIONS		5	EXT.
	<i>Modify</i> Use the paper made by the students to make the cover for a journal about the activity.			

Lesson III Activity 2: What Sort of Trash is This Anyway? p. III-14

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5	All
SC	SCIENTIFIC INQUIRY	B	3	4
SC	SCIENTIFIC WAYS OF KNOWING	B	2	3,4
	<i>Modify</i> Have students justify choices.			
ELA	ACQUISITION OF VOCABULARY		1,6,8	5
	<i>Modify</i> Develop word webs for each of the vocabulary that would include the word, student definition, a picture, prefix or suffix where applicable, and student sentence.			

Lesson IV Activity 1: Lifecycle Bingo p. IV-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5,6	1,5, ASSESS.
	<i>Modify</i> Change procedures to de-emphasize the shapes and replace them with symbols that more accurately reflect lifecycle analysis objects. Eliminate procedures 2 and 3 and teach students the symbols that represent each cycle step. Suggestions for symbols: <i>process</i> --squashed aluminum can; <i>transportation</i> --garbage barge; <i>output</i> --a manufactured product such as a television; <i>natural resource</i> --a collage of trees, coal, and drop of water; <i>energy input</i> --electric power line and wind turbine with sun in the background. Update the energy input section to include alternative energy sources (wind, solar panels, fuel cells, geothermal and hydropower). Lifecycle cards will need to include these new energy cards. Student bingo cards will need to be redone to reflect change from shapes to symbols. Replace pages 21 and 22 to reflect the new symbols rather than shapes.			
SC	SCIENCE AND TECHNOLOGY	A	1	1,2,5 ASSESS.
SC	PHYSICAL	D	1	See Modify
	<i>Modify</i> Add an extension to have students research melting temperatures of recycled materials in the recycling process.			
ELA	ACQUISITION OF VOCABULARY		1	2, ASSESS.
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	2, ASSESS.
SS	GEOGRAPHY	C	9	1,2,5, ASSESS.
	<i>Modify</i> Add a map of Ohio and the Great Lakes highlighting natural resources and mining.			
SS	GEOGRAPHY	B	6	1,2,5, ASSESS.

Lesson V Activity 1: The Great Cycle p. V-10

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	B	1,2,3	All
ELA	WRITING APPLICATIONS		1	EXT.
ELA	ACQUISITION OF VOCABULARY		3	2,3
ELA	ACQUISITION OF VOCABULARY		8	2,3
ELA	READING PROCESS		1	4
ELA	READING PROCESS		9	4

Lesson V Activity 2: Bio-What? That's Biodegradation! p. V-17

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5,6	1-10
SC	LIFE	C	6	8-10, EXT.
SC	SCIENCE AND TECHNOLOGY	A	1	4,5,8, EXT.
SC	SCIENCE AND TECHNOLOGY	B	3	8,9,10, EXT.
SC	SCIENTIFIC INQUIRY	B	2,3	7
SC	SCIENTIFIC INQUIRY	C	6	7
SC	SCIENTIFIC WAYS OF KNOWING	B	4	7
SC	SCIENTIFIC WAYS OF KNOWING	C	5	7
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		1,7	PART B: 1-3
ELA	WRITING APPLICATIONS		2	PART B: 3
MA	DATA ANALYSIS AND PROBABILITY		2	7

Lesson V Activity 3: Compost Critters p. V-21

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	B	1,2,3	PART A: All
SC	LIFE	C	4,5,6	PART B: All, EXT.
SC	SCIENTIFIC INQUIRY	A	1	PART B: 3,5
SC	SCIENTIFIC INQUIRY	B	2	PART B: 1
SC	SCIENTIFIC WAYS OF KNOWING	A	1	PART B: 5, EXT. 2
SC	SCIENTIFIC WAYS OF KNOWING	B	4	EXT. 4
	Modify Extend Extension 4 by having students bring in soil samples or decomposing items.			
SC	SCIENTIFIC WAYS OF KNOWING	C	5	PART B: 3
ELA	ACQUISITION OF VOCABULARY		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		6	PART A: 2-4
ELA	READING APPLICATIONS: INFORMATIONAL ...		1	PART B: 1
ELA	READING APPLICATIONS: INFORMATIONAL ...		4	PART B: 6
ELA	RESEARCH		3	PART B: 1

Lesson V Activity 4: Meet the YIMBYs p. V-28

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	B	1,2,3	4,5,6
SC	LIFE	C	4,5,6	6, EXT. 1-3
	Modify Have students sort themselves into piles instead of using color cards.			
	PHYSICAL	D	1,2	4,5, EXT. 1
	SCIENCE AND TECHNOLOGY	A	1	4,5, EXT.1&2
MA	DATA ANALYSIS AND PROBABILITY		9	6
ELA	WRITING APPLICATIONS		5	EXT. 5

Lesson V Activity 5: Compost Jars p. V-33

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	B	1	EXT. 1&2
SC	LIFE	C	4,5,6	PART B: 5, EXT. 1
SC	PHYSICAL	D	1,2	PART B: 13,14, EXT. 2
SC	SCIENTIFIC INQUIRY	A	1	PART B: 13
SC	SCIENTIFIC INQUIRY	B	2,3	PART B: 13,14
SC	SCIENTIFIC INQUIRY	C	4,6	PART B: 1
SC	SCIENTIFIC WAYS OF KNOWING	A	1	EXT. 3-5
SC	SCIENTIFIC WAYS OF KNOWING	B	2,3,4	PART C: 3
SC	SCIENTIFIC WAYS OF KNOWING	C	5	PART B: 13, EXT. 1
SC	SCIENTIFIC WAYS OF KNOWING	D	6	EXT. 3
ELA	WRITING PROCESS		1,2,3	EXT. 3
ELA	WRITING PROCESS		17	EXT. 3
ELA	WRITING APPLICATIONS		4	EXT. 3
ELA	RESEARCH		1,2	EXT. 3
MA	DATA ANALYSIS AND PROBABILITY		1	PART A: 2, PART B: 13,14

Lesson VI Activity: Separation Mania p. VI-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5,6	1,2,6
SC	SCIENCE AND TECHNOLOGY	A	1	All, including ASSES.
SC	SCIENCE AND TECHNOLOGY	B	2,3	All
SC	SCIENTIFIC INQUIRY	A	1	3,4, EXT. 1
	<i>Modify:</i> Present each group with a worksheet with all the steps for scientific inquiry and have them fill it in before attempting to collect their items from the MRF.			
SC	SCIENTIFIC INQUIRY	B	3	3,4,6,9; Modify 7,8,9,10, EXT.1
	<i>Modify:</i> Students evaluate the success of the plan and how it might be revised.			
SC	SCIENTIFIC WAYS OF KNOWING	A	1	9,10, ASSESS. 2, EXT. 1
SS	SKILLS AND METHODS	D	All	All
MA	DATA ANALYSIS		2,3	7
	<i>Modify:</i> Have each group decide which is the best method of representing the data.			
MA	PATTERNS, FUNCTIONS AND ALGEBRA		6	7
	<i>Modify:</i> Differentiate activity for higher-level thinkers by having them consider the impact in the future of population growth and increased recycling needs.			
ELA	COMMUNICATION: ORAL AND VISUAL		8	9,10
	<i>Modify:</i> Have each group orally present the results of their trial run with scientific explanations.			

Lesson VII Activity 1: Landfill Lingo p. VII-7

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
ELA	ACQUISITION OF VOCABULARY		1	2,4
ELA	READING PROCESS: CONCEPTS OF PRINT ...		7	ASSESS. 1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		2	ASSESS. 2
SC	SCIENCE AND TECHNOLOGY	A	1	5
SC	SCIENCE AND TECHNOLOGY	B	3	5

Lesson VII Activity 2: Does Your Soil Leak? p. VII-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENTIFIC INQUIRY	B	3	2,3
MA	NUMBER, NUMBER SENSE AND OPERATIONS		1	3
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	1

Lesson VII Activity 3: Finer Liner p. VII-16

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	1	7,8
SC	SCIENCE AND TECHNOLOGY	B	2	8
SC	SCIENTIFIC INQUIRY	B	3	6,7
SC	SCIENTIFIC INQUIRY	C	4	4
SC	SCIENTIFIC WAYS OF KNOWING	A	1	7

Lesson VII Activity 4: Life . . . Without Pollution Prevention p. VII-18

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	6	10
SC	SCIENCE AND TECHNOLOGY	A	1	8,9
SC	SCIENTIFIC INQUIRY	B	2,3	6-9
SC	SCIENTIFIC INQUIRY	C	4	9
SC	SCIENTIFIC WAYS OF KNOWING	A	1	9
SC	SCIENTIFIC WAYS OF KNOWING	C	5	6-8
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		7	10
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	6,7

Lesson VIII Activity 1: Show'Em Sherlock p. VIII-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5	PART B: 5
ELA	RESEARCH		2,3	PART B: 2,3,6

Lesson VIII Activity 2: Mining and Recycling p. VIII-19

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5	PART A: 2
SC	SCIENCE AND TECHNOLOGY	B	2	PART B
SC	SCIENTIFIC INQUIRY	B	2,3	PART B
<i>Modify:</i> Discuss the cookie mining process in light of the indicators.				

Lesson IX Activity 3: Trash Around the World p. IX-11

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	SKILLS AND METHODS	B	6	4-6
SS	SKILLS AND METHODS	C	5,8,9	4-6
SS	SKILLS AND METHODS	D	9	1-6
MA	DATA ANALYSIS AND PROBABILITIES		1,3	5
SC	EARTH AND SPACE	C	5,6	2,3
SC	SCIENCE AND TECHNOLOGY	A	1	2,3
ELA	READING PROCESS: CONCEPTS OF PRINT		6	4-6
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	4-6

Lesson X Activity 1: The "Costly" Thing p. X-6

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	EARTH AND SPACE	C	5	2
<i>Modify:</i> Add material or activity that addresses renewable and nonrenewable resources.				
SC	EARTH AND SPACE	C	6	2, EXT. 3
SC	SCIENCE AND TECHNOLOGY	A	1	5, ASSESS. A&B
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT . . .		5	2,4
ELA	READING APPLICATIONS: INFORMATIONAL . . .		5	5

Lesson X Activity 2: Pollution on the Move p. X-12

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	LIFE	C	6	All
SC	SCIENCE AND TECHNOLOGY	A	1	All
SS	GEOGRAPHY	C	9	2,3
ELA	READING PROCESS: CONCEPTS OF PRINT ...		1	1
ELA	READING PROCESS: CONCEPTS OF PRINT ...		5	4,5
ELA	READING APPLICATIONS: INFORMATIONAL ...		5	4,5
ELA	READING APPLICATIONS: INFORMATIONAL ...		2	2

Lesson XI Activity: Home, Safe Home p. XI-4

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SC	SCIENCE AND TECHNOLOGY	A	1	PART A:2-4; PART B: 2,3 ASSESS. 2,3; EXT.1-5
	<i>Modify</i> Tie extensions to a reading objective for researching the effects of farming technology.			
SC	SCIENCE AND TECHNOLOGY	B	3	All
	<i>Modify</i> Discuss how products created for convenience can cause use and disposal concerns.			
SC	SCIENTIFIC INQUIRY	C	4,5,6	EXT. 2
	<i>Modify</i> Conduct a classroom experiment to test and compare a common consumer product with an alternative cleaning method.			
SC	SCIENTIFIC WAYS OF KNOWING	A	1	PART A: 1-4, B: 3, C: 3, ASSESS. 2-3, EXT. 1,5
SC	EARTH AND SPACE	C	6	All
	<i>Modify</i> Examine how personal choices can help conserve Earth's resources.			
SC	DATA ANALYSIS AND PROBABILITY		4	EXT. 3
ELA	ACQUISITION OF VOCABULARY		1	PART A. 1
ELA	READING APPLICATIONS: INFORMATIONAL ...		2	PART A: 3, B: 1,2,3, C: 3, EXT. 5
ELA	RESEARCH		1-3,6	EXT.
	<i>Modify</i> Have students research farming practices.			
ELA	WRITING PROCESS		4,5,10, 15,17	ASSESS. 3
SS	HISTORY	A	1	EXT.
	<i>Modify</i> Construct a timeline addressing changes in agricultural methods for dealing with pests and soil quality.			

Lesson XIV Activity: Journey of a Garbage Bill p. XIV-5

SUBJECT	STANDARD	BM	IND	ACTIVITY STEPS
SS	GEOGRAPHY	C	9	3-10
	<i>Modify:</i> Discuss how handling solid waste changes our environment. Add to step 9, "9e" to address the question: Why did this bill need to be written?			
SS	GOVERNMENT	A	1	1-10
	<i>Modify</i> Add a step 11. Have students compare and contrast roles of local/state government with the roles of the federal government regarding solid waste management.			
ELA	COMMUNICATION: ORAL AND VISUAL		1	1-10
ELA	COMMUNICATION: ORAL AND VISUAL		2	1-10
ELA	COMMUNICATION: ORAL AND VISUAL		3	5-7
	<i>Modify</i> Address the purposes of the speakers in the discussion phase.			
ELA	COMMUNICATION: ORAL AND VISUAL		4	9b
ELA	COMMUNICATION: ORAL AND VISUAL		6	5-7
	<i>Modify</i> Discuss the elements of this indicator prior to students presentation of speeches.			
ELA	COMMUNICATION: ORAL AND VISUAL		7	5-7
ELA	COMMUNICATION: ORAL AND VISUAL		10	5-7
ELA	ACQUISITION OF VOCABULARY		1	5
ELA	ACQUISITION OF VOCABULARY		8	5
ELA	WRITING APPLICATIONS		3	EXT.

INDEX OF SCIENCE STANDARDS ALIGNED WITH ACTIVITIES

Standard-bold; Benchmark-letter; Indicator-number
Underline=recycling addressed: grades 1&5

GRADE K

Earth and Space

- B. Explain that living things cause changes on Earth.
- 2. Explore that animals and plants cause changes to their surroundings.

Science and Technology

- A. Explain why people, when building or making something, need to determine what it will be made of, how it will affect other people and the environment.
- 1. Explore that objects can be sorted as "natural" or "man-made".

Scientific Ways of Knowing

- B. Recognize the importance of respect for all living things.
- 3. Interact with living things and the environment in ways that promote respect.

GRADE 1

Earth and Space

- D. Describe what resources are and recognize some are limited but can be extended through recycling or decreased use.
- 1. Identify that resources are things that we get from the living (e.g., forests) and nonliving (e.g., minerals, water) environment and that resources are necessary to meet the needs and wants of a population.
- 2. Explain that the supply of many resources is limited but the supply can be extended through careful use, decreased use, reusing and/or recycling.

Physical Science

- A. Discover that many objects are made of parts that have different characteristics. Describe these characteristics and recognize ways an object may change.
- 3. Explore and observe that things can be done to materials to change their properties (e.g., heating, freezing, mixing, cutting, wetting, dissolving, bending and exposing to light).

Science and Technology

- A. Explain why people, when building or making something, need to determine what it will be made of, how it will affect other people and the environment.
- 3. Identify some materials that can be saved for community recycling projects (e.g., newspapers, glass and aluminum).

GRADE 2

Science and Technology

A. Explain why people, when building or making something, need to determine what it will be made of, how it will affect other people and the environment.

1. Explain that developing and using technology involves benefits and risks.

Scientific Inquiry

A. Ask a testable question.

1. Ask "how can I/we" questions.
2. Ask "how do you know" questions (not "why" questions) in appropriate situations and attempt to give reasonable answers when others ask questions.
3. Explore and pursue student-generated "how" questions.

Scientific Ways of Knowing

B. Recognize the importance of respect for all living things.

3. Describe ways in which using the solution to a problem might affect other people and the environment.

GRADE 3

Earth and Space

C. Describe Earth's resources including rocks, soil, air, water, plants and animals and the ways in which they can be conserved.

4. Observe and describe the composition of soil (e.g., small pieces of rock and decomposed pieces of plants and animals, and products of plants and animals).
5. Investigate the properties of soil (e.g., color, texture, capacity to retain water, ability to support plant growth).
6. Investigate that soils are often found in layers and can be different from place to place.

Life

A. Differentiate between the life cycles of different plants and animals.

1. Compare the life cycles of different animals including birth to adulthood, reproduction and death (e.g., egg-tadpole-frog, egg-caterpillar-chrysalis-butterfly).

B. Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.

2. Relate animal structures to their specific survival functions (e.g., obtaining food, escaping or hiding from enemies).
3. Classify animals according to their characteristics (e.g., body coverings and body structure).

C. Compare changes in an organism's ecosystem/habitat that affect its survival.

6. Describe how changes in an organism's habitat are sometimes beneficial and sometimes harmful.

Physical

C. Describe the forces that directly affect objects and their motion.

3. Identify contact/noncontact forces that affect motion of an object (e.g., gravity, magnetism and collision).
4. Predict the changes when an object experiences a force (e.g., a push or pull, weight and friction).

Science and Technology

A. Describe how technology affects human life.

1. Describe how technology can extend human abilities (e.g., to move things and to extend senses).
2. Describe ways that using technology can have helpful and/or harmful results.
3. Investigate ways that the results of technology may affect the individual, family and community.

B. Describe and illustrate the design process.

4. Use a simple design process to solve a problem (e.g., identify a problem, identify possible solutions and design a solution).
5. Describe possible solutions to a design problem (e.g., how to hold down paper in the wind).

Scientific Inquiry

A. Use appropriate instruments safely to observe, measure and collect data when conducting a scientific investigation.

1. Select the appropriate tools and use relevant safety procedures to measure and record length and weight in metric and English units.

B. Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.

2. Discuss observations and measurements made by other people.
3. Read and interpret simple tables and graphs produced by self/others.
5. Record and organize observations (e.g., journals, charts and tables).

C. Develop, design and safely conduct scientific investigations and communicate the results.

4. Identify and apply science safety procedures.
6. Communicate scientific findings to others through a variety of methods (e.g., pictures, written, oral and recorded observations).

Scientific Ways of Knowing

B. Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.

1. Describe different kinds of investigations that scientists use depending on the questions they are trying to answer.

C. Explain the importance of keeping records of observations and investigations that are accurate and understandable.

2. Keep records of investigations and observations and do not change the records that are different from someone else's work.

D. Explain that men and women of diverse countries and cultures participate in careers in all fields of science.

3. Explore through stories how men and women have contributed to the development of science.
4. Identify various careers in science.
5. Discuss how both men and women find science rewarding as a career and in their everyday lives.

GRADE 4

Earth and Space

B. Summarize the processes that shape Earth's surface and describe evidence of those processes.

10. Describe evidence of changes on Earth's surface in terms of slow processes (e.g., erosion, weathering, mountain building and deposition) and rapid processes (e.g. volcanic eruptions, earthquakes and landslides).

Life

- A. Differentiate between the life cycles of different plants and animals.
1. Compare the life cycles of different plants including germination, maturity, reproduction and death.
 5. Describe how organisms interact with one another in various ways (e.g., many plants depend on animals for carrying pollen or dispersing seeds).

- B. Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.
2. Relate plant structures to their specific functions (e.g., growth, survival and reproduction).
 3. Classify common plants according to their characteristics (e.g., tree leaves, flowers, seeds, roots and stems).

Physical

- A. Compare the characteristics of simple physical and chemical changes.
1. Identify characteristics of a simple physical change (e.g., heating or cooling can change water from one state to another and the change is reversible).
 2. Identify characteristics of a simple chemical change. When a new material is made by combining two or more materials, it has chemical properties that are different from the original materials (e.g., burning paper, vinegar and baking soda).
- B. Identify and describe the physical properties of matter in its various states.
2. Describe objects by the properties of the materials from which they are made and that these properties can be used to separate or sort a group of objects (e.g., paper, glass, plastic and metal).
Explain that matter has different states (e.g., solid, liquid and gas) and that each state has distinct physical properties.
- D. Summarize the way changes in temperature can be produced and thermal energy transferred.
5. Compare ways the temperature of an object can be changed (e.g., rubbing, heating and bending of metal).

Science and Technology

- A. Describe how technology affects human life.
1. Explain how technology from different areas (e.g., transportation, communication, nutrition, healthcare, agriculture, entertainment and manufacturing) has improved human lives.
 2. Investigate how technology and inventions change to meet peoples' needs and wants.
- B. Describe and illustrate the design process.
3. Describe, illustrate and evaluate the design process used to solve a problem.

Scientific Inquiry

- A. Use appropriate instruments safely to observe, measure and collect data when conducting a scientific investigation.
1. Select the appropriate tools and use relevant safety procedures to measure and record length, weight, volume, temperature and area in metric and English units.
- B. Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.
2. Analyze a series of events and/or simple daily or seasonal cycles, describe the patterns and infer the next likely occurrence.

- C. Develop, design and safely conduct scientific investigations and communicate the results.
- 3. Develop, design and conduct safe, simple investigations or experiments to answer questions.
- 4. Explain the importance of keeping conditions the same in an experiment.
- 5. Describe how comparisons may not be fair when some conditions are not kept the same between experiments.
- 6. Formulate instructions and communicate data in a manner that allows others to understand and repeat an investigation or experiment.

Scientific Ways of Knowing

- A. Distinguish between fact and opinion and explain how ideas and conclusions change as new knowledge is gained.
 - 1. Differentiate fact from opinion and explain that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.
- B. Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.
 - 3. Explain discrepancies in an investigation using evidence to support findings.
- C. Explain the importance of keeping records of observations and investigations that are accurate and understandable.
 - 2. Record the results and data from an investigation and make a reasonable explanation.
 - 4. Explain why keeping records of observations and investigations is important.

GRADE 5

Earth and Space

- C. Describe Earth's resources including rocks, soil, water, air, animals and plants and the ways in which they can be conserved.
 - 5. Explain how the supply of many non-renewable resources is limited and can be extended through reducing, reusing and recycling but cannot be extended indefinitely.
 - 6. Investigate ways Earth's renewable resources (e.g., fresh water, air, wildlife and trees) can be maintained.

Life Sciences

- B. Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.
 - 1. Describe the role of producers in the transfer of energy entering ecosystems as sunlight to chemical energy through photosynthesis.
 - 2. Explain how almost all kinds of animals' food can be traced back to plants.
 - 3. Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).
- C. Compare changes in an organism's ecosystem/habitat that affect its survival.
 - 4. Summarize that organisms can survive only in ecosystems in which their needs can be met (e.g., food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.
 - 5. Support how an organism's patterns of behavior are related to the nature of that organism's ecosystem, including the kinds and numbers of other organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.
 - 6. Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species).

Physical

- D. Summarize the way changes in temperature can be produced and thermal energy transferred.
 - 1. Define temperature as the measure of thermal energy and describe the way it is measured
 - 2. Trace how thermal energy can transfer from one object to another by conduction.

Science and Technology

- A. Describe how technology affects human life.
 - 1. Investigate positive and negative impacts of human activity and technology on the environment.
- B. Describe and illustrate the design process.
 - 2. Revise an existing design used to solve a problem based on peer review.
 - 3. Explain how the solution to one problem may create other problems.

Scientific Inquiry

- A. Use appropriate instruments safely to observe, measure and collect data when conducting a scientific investigation.
 - 1. Select and safely use the appropriate tools to collect data when conducting investigations and communicating findings to others (e.g., thermometers, timers, balances, spring scales, magnifiers, microscopes and other appropriate tools).
- B. Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.
 - 2. Evaluate observations and measurements made by other people and identify reasons for any discrepancies.
 - 3. Use evidence and observations to explain and compare the results of investigations.
- C. Develop, design and safely conduct scientific investigations and communicate the results.
 - 4. Identify one or two variables in a simple experiment.
 - 5. Identify potential hazards and/or precautions involved in an investigation.
 - 6. Explain why results of an experiment are sometimes different (e.g., because of unexpected differences in what is being investigated, unrealized differences in the methods used or in the circumstances in which the investigation was carried out, and because of errors in observations).

Scientific Ways of Knowing

- A. Distinguish between fact and opinion and explain how ideas and conclusions change as new knowledge is gained.
 - 1. Summarize how conclusions and ideas change as new knowledge is gained.
- B. Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.
 - 2. Develop descriptions, explanations and models using evidence to defend/support findings.
 - 3. Explain why an experiment must be repeated by different people or at different times or places and yield consistent results before the results are accepted.
 - 4. Identify how scientists use different kinds of ongoing investigations depending on the questions they are trying to answer (e.g., observations of things or events in nature, data collection and controlled experiments).
- C. Explain the importance of keeping records of observations and investigations that are accurate and understandable.
 - 5. Keep records of investigations and observations that are understandable weeks or months later.
- D. Explain that men and women of diverse countries and cultures participate in careers in all fields of science.
 - 6. Identify a variety of scientific and technological work that people of all ages, backgrounds and groups perform.

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