

CHESAPEAKE EDITION

# Virginia's State Parks and Natural Area Preserves

. . . Your Backyard Classrooms

## Field Activities Grades K-12

Developed to meet Virginia Standards of Learning

for use at

Belle Isle State Park  
Bush Mill Stream Natural Area Preserve  
Caledon Natural Area  
Chippokes Plantation State Park  
False Cape State Park  
First Landing State Park and Natural Area  
Hughlett Point Natural Area Preserve  
Leesylvania State Park  
Kiptopeke State Park  
Mason Neck State Park  
North Landing River Natural Area Preserve  
Westmoreland State Park  
York River State Park

*Developed for*



*by*

The Virginia Sea Grant Marine  
Advisory Program  
Virginia Institute of Marine Science  
The College of William and Mary

Revised 1999



*James S. Gilmore, III  
Governor*

*John Paul Woodley, Jr.  
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# Table of Contents

Introduction ..... 1  
Chesapeake Area Map ..... 2  
To the Teacher ..... 3  
Grade Level, Subject and Locations ..... 7

## Parks and Natural Area Preserves

Belle Isle ..... 9  
Bush Mill Stream ..... 11  
Caledon ..... 13  
Chippokes Plantation ..... 15  
False Cape ..... 17  
First Landing ..... 19  
Hughlett Point ..... 21  
Kiptopeke ..... 23  
Leesylvania ..... 25  
Mason Neck ..... 27  
North Landing River ..... 29  
Westmoreland ..... 31  
York River ..... 33

## Activities

Treasured Maps ..... 35  
Telling Tides ..... 37  
Water Motion & Commotion ..... 41  
Sand Shakes & Mud Pies ..... 46  
Going... Going ..... 50  
Where Has All the Topsoil Gone? ..... 52  
Where the Water Falls ..... 54  
Mainstream ..... 58  
Pollution Solutions ..... 63  
Habitat Hunt ..... 66  
Little Limnologists ..... 70  
Wanted: Dead or Alive ..... 74  
Whose Clues? ..... 77

What's My Line? ..... 81  
Changing of the Green ..... 85  
Fire in the Wildlands ..... 88  
A Forest Grows ..... 92  
Kneedeep ..... 96  
Hotfoot ..... 100  
Marsh March ..... 104  
Wetland in a Pan ..... 110  
Hide and Seek ..... 112  
Small Fry Spies ..... 114  
Feathered Feeders ..... 118  
Beaver Tales ..... 122  
Picking up the Past ..... 126  
Catch a Class Act ..... 130  
*Callinectes sapidus*: Beautiful  
Tasty Swimmer ..... 136  
Ups and Downs ..... 140  
How "Eagle Eyed" Are You? ..... 145  
You, Too, Can Canoe! ..... 148  
Water-Way To Get Around ..... 150  
Great Bay Land Grab ..... 154  
Whose Flotsam Is This? ..... 158  
Clues to the Past ..... 161  
Plantations and Plenty ..... 166  
Yesteryear ..... 168  
Fragments of the Past in Lee's Woods ..... 171  
Researching the Bay ..... 174

## Information

Standards of Learning ..... 179  
Key Words ..... 180  
Helpful Phone Numbers ..... 183  
Species List ..... 184  
Chesapeake Bay Primer ..... 196

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## COMMONWEALTH of VIRGINIA

### DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 306

TEL (804) 786-2121 Richmond, Virginia 23219-2010 (804) 786-4375 FAX (804) 786-9294

Dear User:

The Department of Conservation and Recreation, Division of State Parks appreciates your use of our highly acclaimed program. Since 1936 our mission has been to *protect, conserve and manage significant state natural, recreational, historical and cultural resources, and to provide recreational and educational services, opportunities and facilities consistent with the needs of Virginians and their guests.*

Through quality conservation education programs—especially the education of Virginia’s young people—our parks and natural areas can play a major role in the future stewardship of our Commonwealth’s natural resources. By giving students the opportunity to relate to and understand the natural world through inquiry-driven, hands-on learning experiences, we are allowing them to develop a personal appreciation for the environment. It is this understanding and appreciation on the part of tomorrow's leaders and decision makers that will help ensure a quality environment for future generations.

*Your Backyard Classroom* makes it easy, fun and rewarding for students, grades K-12, to use the many State Parks and Natural Area Preserves in the tidewater region. The program, which incorporates the State Standards of Learning objective, contains 40 activities which address a variety of subjects, issues and concepts. The activities are designed to involve students before, during and after field trips and encourages them to make hypotheses, observations and inferences. Although each activity includes concise step-by-step procedures, group leaders are encouraged to mix, match and adapt activities in order to customize field trips to better meet their own instructional goals.

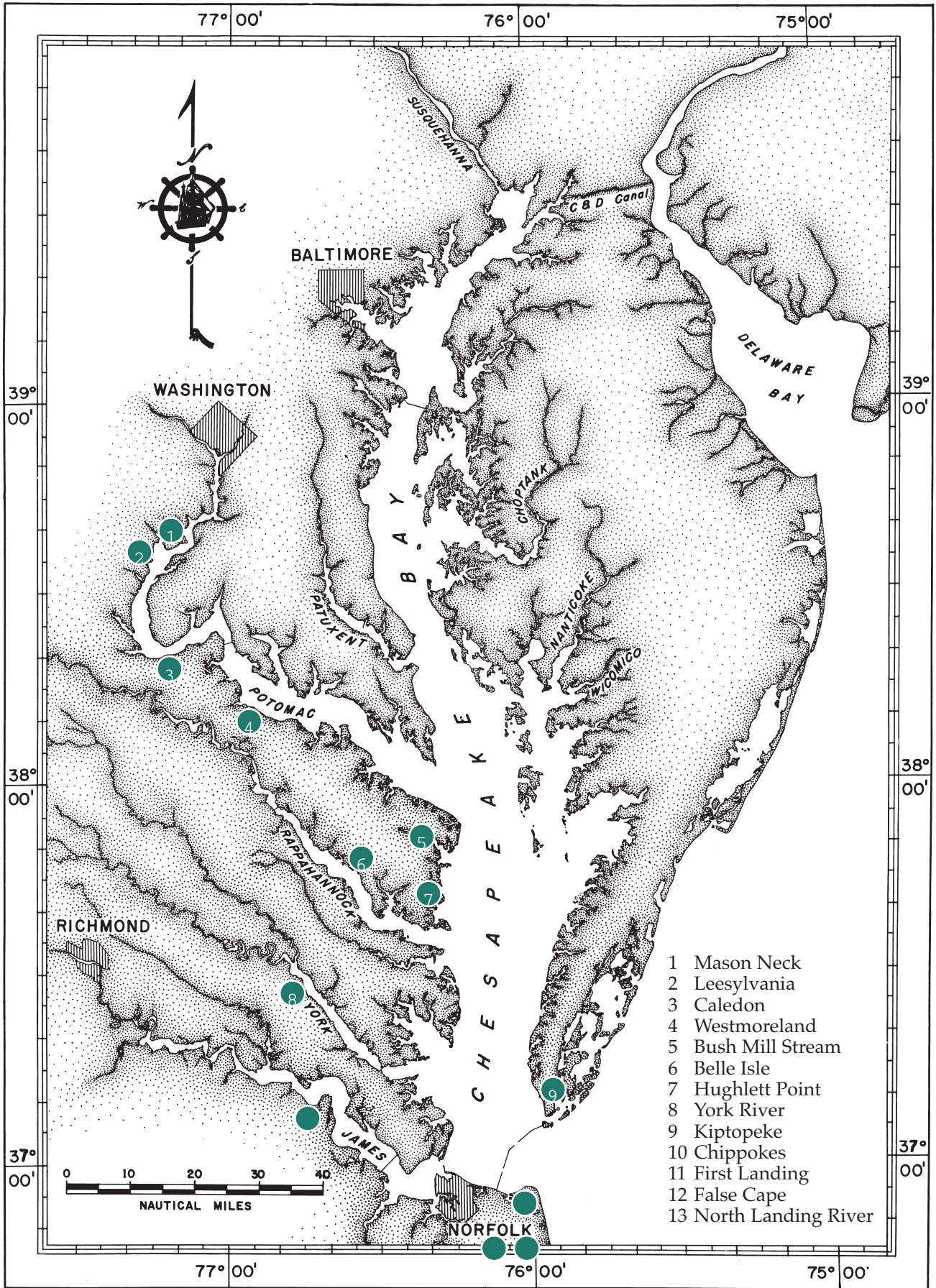
Please use *Your Backyard Classroom* often and join in the effort to protect Virginia’s priceless natural heritage by sharing sound science and a sound conservation ethic.

Sincerely,

A handwritten signature in black ink that reads "Joe Elton".

Joe Elton,  
State Parks Director

*An Agency of the Natural Resources Secretariat*



# To the Teacher

## What Research Says to the Field Tripper

The thought of a class field trip, especially in an outdoor setting, can cause jitters in even the most experienced teacher. The purpose of this guide is to provide lots of ideas for activities to keep students organized, on task, and excited about learning in Virginia's estuarine state parks and natural area preserves. The tips in this section will help to make the trip an outstanding learning experience.

Some great advice comes from John Falk (formerly Associate Director of Education at the Smithsonian Institution's Chesapeake Bay Center for Environmental Studies), who taught thousands of students who came to the center for school field trips. He and his staff conducted a systematic study of the children's behavior, and the following are some excerpts from an article written about those observations:

*Suppose you have taught your dog some new tricks . . . You take him over to your friend's house (where he has never been) and . . . your dog performs poorly. In fact, all he does is sniff around the corners of the room. Frustrated, you give up and let him sniff.*

*Interestingly enough, the next day you and your dog happen to be over at your friend's house again . . . This time, your dog performs perfectly.*

*What happened? On the first day you expected your dog to perform tricks in a novel environment. Dogs and every other vertebrate, including humans, have evolved a need to feel at least minimally secure in new surroundings. Biologically speaking, there is survival value in having the instincts to "check out" an environment before settling down to do a task in it. Primates, in particular, are the curiosity champions of the animal world. Nonetheless, we frequently expect children to "perform tricks" — learn concepts — in novel environments, while "instinctively" they want to "sniff around the corners."*

*One logical and successful approach to the problem of novelty effects on learning is to design field trip activities that allow structured exploration. Most children want to explore a novel environment, but lack efficient strategies for doing so. They may run around in circles. Consequently, an activity that gives them a reason for exploring, gathering data, for example, along with a basic itinerary can be helpful. A nature scavenger hunt is an excellent introductory activity—assuming that the clues children are asked to respond to are appropriate for their age and interests.\**

The activities provided in this guide are designed to ensure the necessary structure and framework for productive field trips. Both pre- and post-field trip lesson suggestions are included to give students a sense of mission and to reinforce learning that takes place at the state park or natural area preserve. Science process skills are emphasized, with ample opportunities for students to conduct activities in which they are challenged to think and explore and investigate some of Virginia's most interesting Chesapeake Bay country.

\* Falk, J. and J. Balling. 1980 (March). "The School Field Trip: Where You Go Makes the Difference," *Science and Children*, pp. 6-8, National Science Teachers Association, 1742 Connecticut Avenue, NW, Washington, DC 20009.

*"Take Only Memories,  
Leave Only Footprints"*

. . . is a good motto for state park and natural area preserve visitors. State park regulations prohibit the collection or destruction of any park resource. It is recognized, however, that sometimes minor sacrifices of renewable resources are necessary for effective education. For example, a menhaden that is passed among 50 inquisitive hands is unlikely to survive, but its loss may benefit the rest of the species; and no harm can come from dissecting a dandelion that is destined to be mowed tomorrow.

Nonetheless, groups may damage fragile resources by inadvertently disturbing an ecologically sensitive area. Therefore, if any collecting or off-trail work is planned, please check with the site staff. The staff can assist with minimum-impact planning and will advise on locations.

Discuss environmentally responsible planning and behavior with students, both before the trip and at the site. Many students seldom interact with natural environments and are simply unaware of the consequences of their actions. A visit to a state park or natural area preserve offers a rare opportunity to teach "hands-on" environmental ethics.



# Field Trip Tips

### *Before the Trip*

- ☐ **Visit the state park or natural area preserve** ahead of time to become familiar with the site. Use the site map in this guide to find the essentials—parking area for the buses, restrooms, picnic tables, shelter area, visitor center or office, and emergency telephone. Check in with the staff about:
  - date and time of trip
  - activity plans
  - site selections
  - facilities for students with special needs
  - equipment availability
  - safety considerations
- ☐ Write out a **detailed list of materials and equipment** needed. Double check for everything you might possibly need or want . . .
- ☐ Have a set of **alternate lesson plans** in case of uncooperative weather or environmental conditions (such as high tide vs. low tide, strong winds, rain, very hot or cold temperatures, sun vs. clouds, etc.).
- ☐ Check on **procedures** required by your school and school system. Schedule the bus and make plans for substitutes and for any students who are not going on the trip. Decide on departure and return times.
- ☐ Send home **permission slips** for the students along with a description of the field trip plans for the parents and give a copy to the principal. Include the departure and return times if they are not within the regular school day.
- ☐ Consider **public relations**. The local newspaper might be interested.
- ☐ **Give the students a list** of items they will need:
  - bag lunch and drink with the student's name on the bag

- change of shoes and clothes to leave on the bus
  - soft-soled shoes that can get wet and muddy (NO bare feet)
  - jacket, gloves and hat (it is often cooler near water than at school or home), handkerchief, rain gear, brimmed hat, sunglasses, chapstick, sun screen, insect repellent (as necessary)
  - notepad or clipboard, with pencil attached with string (NO loose papers)
- ☐ Select your **chaperones**. For most outdoor field trips, assign one adult to five students in grades K-4, and one adult to eight students in grades 5-7. Older students need at least two chaperones per class. All students should follow the “buddy” system of watching out for each other. Name tags for primary age children with their name, school, and teacher's name can be very helpful in case someone gets loose!
  - ☐ **Assign jobs** to students and/or chaperones. Various people can be in charge of lunches, field equipment, maps, first aid kit, etc. If small group work is involved, assign roles within the groups.
  - ☐ Establish **emergency procedures** and discuss with chaperones and students.
  - ☐ Provide students with **advance orientation** to the site (maps, slides, videos). Practice any new skills, techniques and procedures which students will need. Introduce any unfamiliar vocabulary or concepts. Share the objectives of the trip and the planned itinerary with students.
  - ☐ **Plan activities for students to do on the bus**. A visual scavenger hunt relevant to the field trip is easy and effective. For example, finding possible

sources of non-point pollution would work well with watershed studies.

- ☐ Take **first-aid kit**. Be sure to find out if any students have special needs, such as bee sting or allergy medications and asthma or diabetic information.
- ☐ Take **life jackets** (or find out if the site has some to loan) if any activity will be in or near water that is higher than the students' waists.
- ☐ Take a **camera**. Pictures of specimens and activities will be useful for follow-up; pictures of the group will be enjoyed by all.

### *At the Site*

- ☐ On arrival, **check in with site staff**.
- ☐ **Explain to students all safety and logistical considerations**, such as boundaries they are to respect for individual activities or the trip as a whole. Review chaperone or “buddy” system assignments and the procedure for emergencies. Remind them about respectful care of the environment.
- ☐ **Take a bathroom break** before beginning your activities and before getting too far away from the rest areas.
- ☐ **Acclimate the students** to the setting with an activity such as a scavenger hunt or exploratory game. Use the site map to preview the state park or natural area preserve.
- ☐ **Describe the day's itinerary** for the students so they will know what to expect.

**Dive in and enjoy the day!**

### A Little Help from our Friends: Small Group Dynamics

Scientists usually conduct field research by working together in organized teams. This approach can also be used successfully with student groups, with each group sharing a task as well as the equipment necessary to complete it.

However, it is not uncommon during group field activities for one or two diligent students to do all the work while the rest of the group stands by without becoming involved. To avoid this scenario, the teacher should organize the group assignments so that each student has a specific job. The active involvement of each student then becomes essential to the successful completion of the activity.

The role assignments described below are for groups of four students each, and can be adapted for many types of field or classroom activities.

☐ **Materials Manager.** This person is responsible for obtaining all equipment and supplies needed by the group. The materials manager should learn to use all equipment correctly and demonstrate its use to the other group members. This person supervises the use of equipment during the activity, collects it when the work is complete, and inventories items before they are returned. If any equipment is lost or needs repair, the materials manager notifies the teacher before the items are put away.

☐ **Reader.** The reader is responsible for making sure all group members understand the assignment and complete it in the time allotted. This student reads aloud all written instructions and is the only group member who should go to the teacher with questions while the field work is being done. The reader also keeps the group on task so

that they are able to finish their work on time.

☐ **Starter.** The starter is the first person to conduct the specific activity necessary for data collection. For example, this student fills the water sample bottles, tests pH, reads the thermometer, etc. If the activity includes repeated sample collections, the other group members should take turns performing these tasks after the starter has begun the work.

☐ **Recorder.** The recorder keeps notes on all important data and group observations. This student is responsible for recording the group's hypotheses and predictions for later comparison with the data actually collected. If the teacher does not provide data charts, the recorder should design them. The recorder also summarizes the group's findings and reports them to the rest of the class after the field work is complete.

Role assignments may be made by the group members themselves or by the teacher. To make role assignments randomly, students in each group can be numbered one through four. The teacher can begin each activity by announcing that, for example, all "ones" will be readers, all "twos" will be recorders, etc. If several different activities are scheduled, roles should be changed so students can have different responsibilities. It may be helpful in the beginning to write out each role description on a card so that the students can refer to them while conducting the field activity.

*Role descriptions adapted from "Collaborative Groups," Full Option Science System, Lawrence Hall of Science, University of California, Berkeley, CA, 1989; provided by the Mathematics and Science Center, Richmond, VA.*

#### *Biological Considerations: Some Simple Precautions*

**Snakes** - All of Virginia's coastal state parks and natural area preserves have some venomous snakes. The copperhead is found at each site except False Cape. The cottonmouth is found at False Cape, First Landing, North Landing River and possibly Chippokes. The canebrake rattlesnake is found at North Landing River. To be safe, all snakes should be left alone and everyone should pay close attention to where they place their feet and hands, especially in dense vegetation.

**Mammals** - A class may catch a glimpse of secretive mammals such as a raccoon, skunk, or fox. Park or natural area preserve mammals are never intentionally fed or kept as "pets," so if a mammal does not flee when approached, or is otherwise acting strangely, it may be sick, possibly with rabies. Steer the class away and report it to a staff person.

**"Bugs"** - All sites have their share of gnats, mosquitoes, deerflies, chiggers and ticks. Thick undergrowth often harbors both ticks and chiggers. Commercial insect repellents are usually adequate to keep "bugs" at bay. Ticks occasionally transmit serious disease. Since ticks can be active during any mild weather, students should get a careful tick check from a parent after returning home. Ticks often attach in the scalp and on tender skin such as around the groin.

**Poison ivy** is abundant in all coastal state parks and natural area preserves. It may appear as a low shrub or as a woody vine. The main stem on mature plants may be covered with brown "hair." The leaves are smooth and shiny above, and are divided into three distinct leaflets. The fruits are clusters of small berries, which turn white when ripe. Anyone coming into contact with poison ivy should wash the area with soap immediately.

### Special Situations: Students with Disabilities

Working with students with disabilities in the out-of-doors can be a rewarding experience for both the student and the teacher. Too often, students with disabilities are excluded from these types of learning experiences, when, with proper preparation, they can be included with ease.

#### *For Students with Physical Disabilities*

Visit the site to determine the suitability of the field study location.

- ☐ Are suitable facilities available (e.g., restroom, ramps, tapes, visual materials, boardwalk trails)?
- ☐ Is access to the specific field study location(s) at the site possible? Are there any especially hazardous areas (e.g., steep grades on trails inappropriate for wheelchairs, sandy or marshy areas)?
- ☐ Are any programs or exhibits available that are specifically designed for students with disabilities (e.g., braille labels, tactile exhibits, taped tour guides, special trails)?
- ☐ How many adult chaperones will be needed by the group?
- ☐ Adapt the activity. Most field activities are designed for visually able, ambulatory students. Activities can be enhanced for students with physical disabilities in several ways, such as stressing multi-sensory observations or changing the pace at which the activity is conducted. For example, students who have visual impairments can study birds by listening to their songs or learn to identify trees by feeling the shape of the leaves. It may be necessary to “relocate”

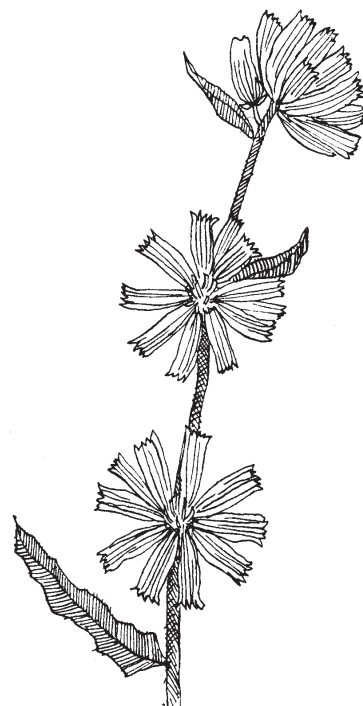
natural finds to locations where they can be observed safely and studied by students with disabilities. You may also need to modify the directions by tape recording, reproducing in large print or braille, or having a signer available. Make every effort to allow students with physical disabilities to work independently on and fully participate in the activities.

- ☐ **Adapt the equipment** for the field study as needed. Simple modifications of existing equipment can help in involving students with disabilities in the field experience. Measuring devices, like meter sticks or graduated cylinders, can be adapted by notching or taping to allow students with visual impairments to make tactile measurements. Students who use wheelchairs can collect water samples if long handles are placed on cups or scoops. These modifications take only a little creativity and time on the part of the teacher and can allow for full participation.
- ☐ **Assign appropriate roles** within the group. Examine the various group roles for those appropriate for students with disabilities. For example, in “Habitat Hunt” a student in a wheelchair might not be able to go into a river or stream to collect water samples but could collect and study soil samples or record the data as it is collected.
- ☐ **Avoid the temptation to water-down content** rather than modifying the method of presenting the content. A teacher’s expectation should not be any lower for students with disabilities.

#### *For Students with Mental or Emotional Disabilities*

- ☐ **Be attuned to the abilities** of the students, presenting the information and expecting the student to conduct the activity at an appropriate level. Pacing of the activity is important for these groups, and the instructor should be flexible enough to adapt the activity if one aspect is of particular interest to the students.
- ☐ **Avoid stressful situations** in the field by practicing skills and necessary decision-making before the trip.

Special situations call for special perspectives, offering the entire group new ways to perceive and learn about the environment. By adapting methods and materials for the students with disabilities, new and effective teaching approaches appropriate for all students are discovered.



## To the Teacher

Activity	Page No.	Grade Level	Sites												
			BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Treasured Maps</i> § H	35	2-12	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Telling Tides</i> § 9	37	6-12	In class												
<i>Water Motion &amp; Commotion</i> § 9	41	6-12	BI		CA	CP	FC	FL	HP	KP	LE	MN		WE	YR
<i>Sand Shakes &amp; Mud Pies</i> § 9	46	4-12	BI		CA	CP	FC	FL		KP	LE	MN		WE	YR
<i>Going...Going</i> § H	50	2-9	BI	BM	CA	CP	FC	FL		KP	LE	MN		WE	YR
<i>Where Has Topsoil Gone?</i> § H	52	6-9	BI			CP									
<i>Where the Water Falls</i> § H	54	4-9		BM	CA	CP	FC	FL		KP	LE	MN		WE	YR
<i>Mainstream</i> §	58	6-10			CA	CP					LE	MN		WE	YR
<i>Pollution Solutions</i> §	63	7-12	BI	BM	CA	CP	FC	FL		KP	LE	MN	NL	WE	YR
<i>Habitat Hunt</i> §	66	6-12	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Little Limnologists</i> §	70	3-6	BI		CA	CP	FC	FL	HP		LE	MN	NL	WE	YR
<i>Wanted: Dead or Alive</i> §	74	4-7	BI		CA	CP	FC	FL	HP	KP	LE	MN		WE	YR
<i>Whose Clues?</i> §	77	K-10	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>What's My Line?</i> § 9	81	6-12	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Changing of the Green</i> §	85	6-12	BI		CA	CP	FC		HP	KP	LE	MN		WE	YR
<i>Fire in the Wildlands</i> § H9	88	6-12			CA		FC						NL	WE	YR
<i>A Forest Grows</i> §	92	4-10	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Kneedeep</i> § -	96	3-7						FL							
<i>Hotfoot</i> § 9	100	4-12					FC	FL		KP					
<i>Marsh March</i> §	104	4-12	BI	BM	CA	CP	FC	FL	HP		LE	MN	NL	WE	YR
<i>Wetland in a Pan</i> §	110	K-9	In class												
<i>Hide and Seek</i> §	112	K-7	BI	BM	CA	CP	FC	FL		KP	LE	MN		WE	YR
<i>Small Fry Spies</i> §	114	K-2	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Feathered Friends</i> §	118	K-9	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Beaver Tales</i> § -	122	K-10	BI		CA	CP					LE	MN		WE	YR
<i>Picking up the Past</i> §	126	4-9				CP					LE			WE	YR
<i>Catch a Class Act</i> §	130	K-12	BI		CA	CP	FC	FL	HP	KP	LE	MN		WE	YR
<i>Callinectes sapidus</i> §	136	K-12	BI				FC	FL	HP	KP				WE	YR
<i>Ups and Downs</i> §	140	3-7	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>How "Eagle-Eyed" Are You?</i> §	145	3-12			CA										
<i>You, Too, Can Canoe!</i> § §	148	3-12	BI			CP	FC			KP	LE	MN			YR
<i>Water-Way to Get Around</i> § -H	150	4-8	BI		CA	CP	FC	FL	HP	KP	LE	MN		WE	YR
<i>Great Bay Land Grab</i> § -H	154	9-12	BI	BM	CA	CP	FC	FL	HP	KP	LE	MN	NL	WE	YR
<i>Whose Flotsam is This</i> § H	158	K-12	BI		CA	CP	FC	FL	HP	KP	LE	MN		WE	YR
<i>Clues to the Past</i> H	161	4-11				CP									
<i>Plantations and Plenty</i> H	166	4-11				CP									
<i>Yesteryear</i> -H	168	4-9						FL							
<i>Fragments of the Past</i> -H	171	7-11									LE				
<i>Researching the Bay</i> § -	174	4-12	In class												

**KEY: SUBJECTS**

§ Science  
 - Language Arts  
 H Social Studies  
 9 Math  
 § Other (See description of activity)

**SITES**

BI - Belle Isle  
 BM - Bush Mill Stream  
 CA - Caledon  
 CP - Chippokes  
 FC - False Cape  
 FL - First Landing  
 HP Hughlett Point  
 KP - Kiptopeke  
 LE - Leesyvania  
 MN - Mason Neck  
 NL - North Landing River  
 WE - Westmoreland  
 YR - York River

