



**National Garden Clubs, Inc.**  
**Environmental, Gardening and Landscape Design Schools**  
**HANDBOOK**

Handbook  
2020

## **INTRODUCTION**

National Garden Clubs (NGC) provides educational opportunities through attendance at Flower Show Schools, Landscape Design Schools (LDS) - implemented in 1958, Gardening Schools (GS) formerly Gardening Study Schools - implemented in 1977 and Environmental Schools (ES) - begun as Environmental Studies Schools, approved by NGC in 1991, first school conducted in 1993. Flower Show Schools are administered with a separate Handbook with unique requirements to be Flower Show Judges. The three schools (ES, GS, LDS) each have subject matter that overlaps and/or complements the curricula of each school. Each of the schools has a series of four 2-day courses and Refreshers. The Refreshers are opportunities for continued education and to attain Master Consultant status upon completing four refresher credits.

A Handbook, common to all three Schools with common forms, is used to conduct each of the three schools. It is believed that achieving as much consistency as possible between the three schools would be beneficial to those who conduct and attend the ES, GS and/or LDS. There is a section containing criteria applicable to all three schools. This Handbook also contains a separate unit for each School with information applicable to only that school.

NGC welcomes all students, both members and non-members, to its schools, which are sponsored by the State Garden Clubs and their member organizations (clubs, districts, councils) and Regions or International Affiliates.

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## Section 1 – Organization of NGC Schools

NGC Schools' Chairmen are appointed for the two-year administrative term by the NGC President-elect who will serve as President during that term. Chairmen should be Consultants in the School to which they are appointed. These NGC board members are responsible for administering the Schools' programs. Changes to committee composition should be evaluated on an ongoing basis and proposed to the President-elect at least every two years.

Chairmanships may vary by school and will include:

### NGC Schools' Chairman

Each NGC School's Chairman has overall responsibility for the operation and activities of that School's program. The Chairman, in coordination with the School's Committee:

- Responds to inquiries about the program
- Develops, promotes and updates the School
- Submits information and articles to *The National Gardener* and *Keeping in Touch*
- Reviews NGC website information for accuracy and submits information as needed
- Reviews the Handbook, forms and other procedural information for accuracy and ease of use
- Evaluates required/recommended reading for ongoing viability
- Prepares agendas and reports for NGC meetings and, as needed, ensures notes of meeting proceedings are taken and circulated to all committee members
- Coordinates with other Schools' Chairmen to achieve and maintain consistencies among Schools
- Reviews and approves or denies, requests for exceptions to procedure, approves or denies Student/Consultant Extension Requests, Reinstatement Requests and Requests for Emeritus Status when recommended by the State Chairman, handles requests for exceptions to School policies
- May delegate any of these duties to other members of the committee

### Accrediting Chairmen

Accrediting Chairmen are assigned to deal with records of students and consultants from various regions and serve as liaisons to the state schools' chairmen within each assigned region, helping to maintain the educational standards of the school. The number of chairmen may vary according to the volume of schools and consultants within the states of each region. The chairman will:

- Assist with the registration (**ES and GS**) of each course and refresher within assigned regions, including instructor credentialing, brochure/advertising review for accuracy, outline review and exam approval.
- For **LDS only**, the Instructors Chairman manages instructor credentialing, course outline review and exam approval.
- Maintain a file of approved Instructor Credentials.
- Receive from State Chairman Roster Summary (Form 5-2020), Application for Accreditation (Form 6-2020) and/or Consultant Refresher Accreditation Application (Form 7-2020), if applicable, and check upon completion of each course or refresher. Review and approve all paperwork. Email the approved/signed forms to NGC Schools Secretary and mail check to Schools Secretary. Issue Consultant and Refresher Cards, maintain consultant records (ES database, LDS card files, GS working towards completed databases)
- Process requests for Extension, Reinstatement and Emeritus Status as delegated by the NGC School's Chairman
- Receive rosters from completed Multiple Refreshers directly from the Multiple Refreshers Chairman or through the NGC School's Chairman, review eligibility for credit, update records,

issue Refresher Cards

- Send Summary of Course Evaluation to NGC Schools Chairman
- Sends Records to incoming Accrediting Chairman within one month of change of chairmanship

### **Consultants' Council Chairmen**

- Encourage the establishment and maintenance of Councils specific to that school or as part of a Bi- or Tri-Council including provision of guidelines and support for State Garden Clubs forming or having Councils
- Encourage attendance at NGC Schools so that students become Consultants and join Councils
- Maintain a current list of Councils with contact information for their Presidents/Chairmen as part of a roster (names, positions, street addresses, telephone numbers and email addresses) of state and region schools and credentials chairmen for posting on the website and distribution to local, state, region and national committee members
- Assist Councils and serve as a liaison between Councils, reporting on innovative activities, sharing information about awards offered by Councils, maintaining and sharing files of Council bylaws, encouraging Council members to maintain Consultant status and encouraging Councils to participate in and assist with or sponsor School Courses and Refreshers
- Communicate (edit and distribute a newsletter such as LD's *Newscaper* via email distribution and posting on the website) with Councils (and NGC officers, NGC Schools' Committee members, state, region and local schools chairmen, and Consultants) to share ideas, events, problems and solutions

### **International Affiliates (IA) Schools Chairmen**

NGC Schools and refreshers are conducted outside the U.S. in accordance with an International Affiliates Handbook/Operations Guide. The IA Guide reflects their national organizations, heritage, horticulture, official and historical designations. **Schools conducted by the International Affiliates follow their own separate guidelines, process and protocols based on NGC guidelines.**

### **Region Chairmen**

Some or all regions may have Schools and/or Council Chairmen. There may be a School Chairmen for each NGC School or there may be an All Schools Chairman. These are appointed by the Region Director and function according to the policies and procedures of each region. They primarily serve as liaisons between NGC Schools' Chairmen and the State Schools' Chairmen within that region. They should be aware of and communicate with the State Chairmen and Council Chairmen/Presidents assigned to their School. They should be knowledgeable about their assigned school, promote the school and encourage participation in schools by members throughout the region, not just by those in the sponsoring state. They provide support, assistance and encouragement to the State Chairmen.

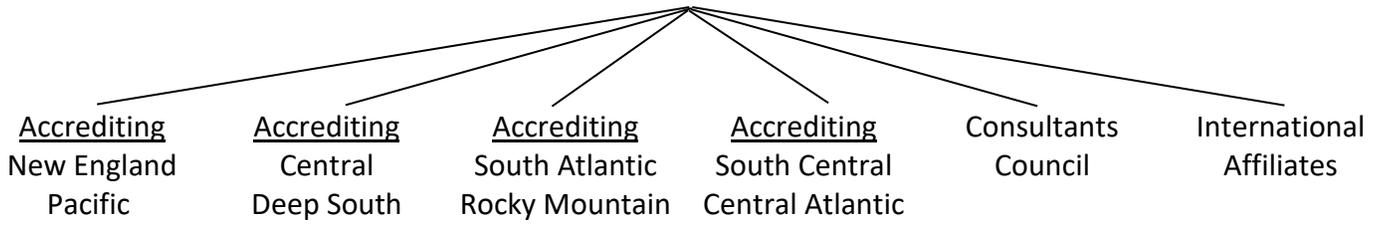
### **NGC Schools Secretary**

- Works at NGC Headquarters
- Refers callers (Local/State Schools Chairmen, students, Consultants, etc.) to appropriate NGC Chairmen
- Contacts NGC Chairmen for information or to alert them of problems
- Receives electronic copy of approved event Registration Form (Form 1-2020) and posts on NGC website and in *Keeping in Touch*
- Receives from Accrediting Chairman approved Course Rosters & Summaries (Form 5-2020), Application(s) for ES, GS, LDS Accreditation (Form 6-2020) and/or Consultant Refresher

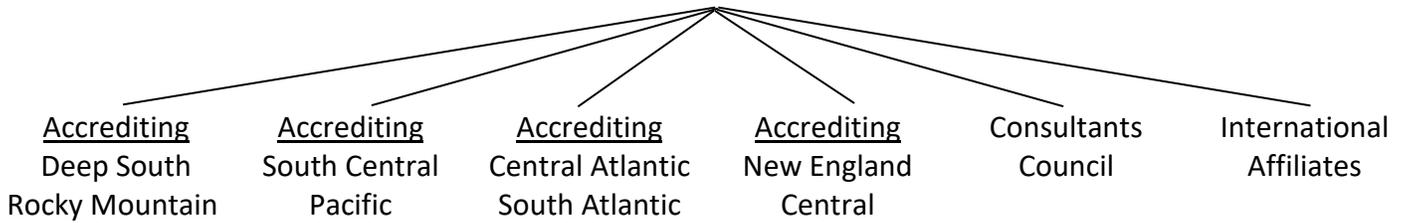
- Accreditation Application(s) (Form 7-2020) and testing/refreshers fees for each completed event
- Updates Headquarters' records with information from Rosters and issues Good Standing Letters to State Chairmen and applicable Accrediting Chairmen
  - Receives from Accrediting Chairman or NGC Schools Chairman approved:
    - ◆ Emeritus Status Applications (Form 8-2020) and issues Emeritus Cards
    - ◆ Applications for Extensions (Form 9-2020) and records the information in NGC records
    - ◆ Applications for Reinstatement (form 10-2020) and records the information in NGC records
    - ◆ Consultant Moving or Death (Form 14-2020) and updates NGC records accordingly

**NATIONAL GARDEN CLUBS**  
Organizational Chart

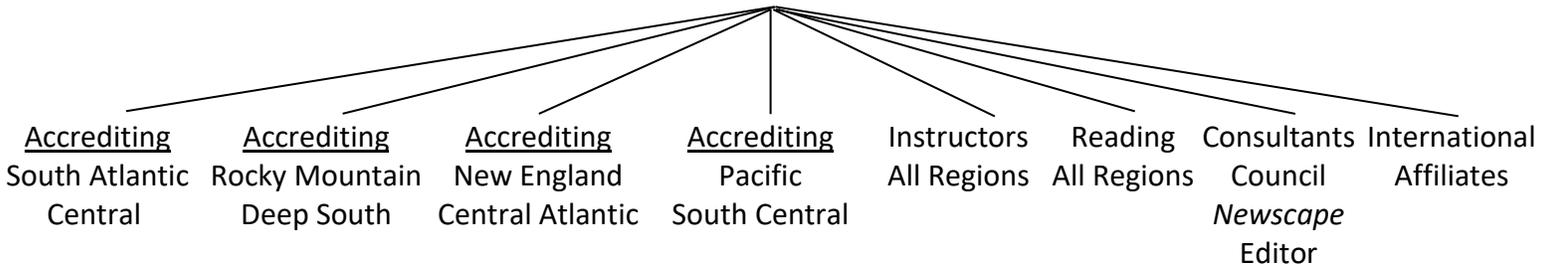
**Environmental School**



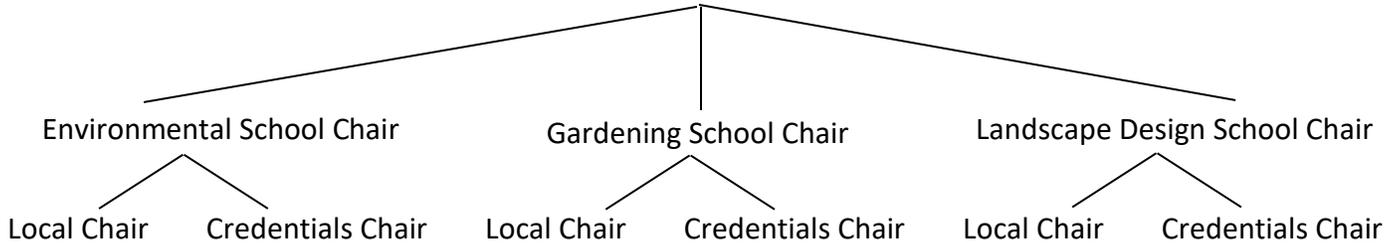
**Gardening School**



**Landscape Design School**



**State Level**



## Section 2 – State School Organization

### State Chairmen

**It is recommended and highly preferred that State Chairmen be Consultants** in the School within which they will be working in order to have some background, experience and expertise with the School (or at least be on the way to obtaining Consultant status in that School).

- State Schools' Chairmen are generally appointed by the State President to serve during the President's two-year term of office.
- The State School's Chairman is responsible for the assigned Environmental, Gardening or Landscape Design School offered within his/her state. Schools may be sponsored by a member club, group of clubs, district, council or the state, but the State School Chairman is responsible for the program, regardless of the sponsoring group and acts as general overseer.
- The State School Chairman will work cooperatively with the Local Chairman to accomplish the steps necessary to conduct a course.
- State School Chairmen are required to download and read the Schools Handbook to expedite the education program.
- **The State School Chairman is responsible for confirming that state guidelines for school approval have been followed, which may include date, place, budget and NGC forms.**
- See State Chairman Task Checklist Form 12-2020 on page 11
- See Local Chairman Task Checklist Form 13-2020 on pages 12 & 13
- Refer to Section 7 General Information for Common Forms for ES, GS, & LDS page 21. Fillable forms are available on the NGC website – [www.gardenclub.org](http://www.gardenclub.org).

### Miscellaneous Duties - State Schools Chairman

- Promote and encourage Schools and Refresher Events within his/her state
- Maintain digital records for each student/consultant within the state, noting courses attended with dates and that exams were passed and dates of refreshers taken for credit
- When a student/consultant advises they have moved to another state, email student/consultant records (Form 6-2020, Form 7-2020 etc.) to the School Chairman of the state where the student/consultant has moved and forward the Consultant Moving, Death or Removal (Form 14-2020) to the Accrediting Chairman who will advise the Schools Secretary of this updated information.
- Upon receipt of Certificate cards (Consultant, Refresher, Master, or Emeritus), distribute to Consultants with congratulatory note
- Send annual refresher reminders to Consultants
- If an extension is needed for a student or consultant, apply to the appropriate NGC Chairman.
- Forward records of out-of-state students to the appropriate State Chairman – see directory on NGC website
- Summarize information from Course Evaluations and sends to the Accrediting Chairman
- Pass the record file on to the succeeding State Chairman. If no chairman is appointed, the file (digital/paper records and spreadsheet) shall be held by the state president or other designee and the appropriate Accrediting Chairman is notified.
- Notify the NGC Schools Secretary, NGC School Chairman and Accrediting Chairman and/or state keeper of records of new chairman and contact information.

### Credentials Chairman

#### **For each School or one Chairman for all Schools**

- Maintains student and consultant records within the state
- Reminds students of course opportunities and reminds consultants of refresher opportunities

- Warns students and consultants of upcoming lapse dates
- *These functions may be, and often are, handled as part of the duties of the State Schools Chairman.*

## Local Chairmen

Local School Chairman may volunteer for this position or be appointed by the local sponsoring organization.

- This Chairman coordinates with the State School's Chairman all aspects of holding and administering a School, and may have a committee that may include a registrar, a treasurer, a proctor, a food/meals chairman, a publicity chairman, etc.
- **It is recommended and highly preferred that Local Chairmen be Consultants in the School** within which they will be working in order to have some background, experience and expertise with the School or at least be on the way to obtaining Consultant status in that School.
- In some cases, especially in small population states or small area states, the State Schools Chairman will also perform the duties of a Local School's Chairman and actually administer the School, performing all tasks on the Local and State Chairman Checklists (Forms 12-2020 & 13-2020)
- State and Local Chairmen taking a course they are administering for credit may do so if they arrange with someone else to obtain exams from the instructors, review the exams, forward the exams to the appropriate NGC School's Chairman and reproduce the exams for the students. In other words, they may not see or handle the exams prior to taking the exams.
- The Local Chairman:
  - ◆ Performs the duties on the **Local Chairman Task Checklist Schools (Form 13-2020)**
  - ◆ Summarizes course and instructor comments/information from the Course Evaluations
  - ◆ Sends summary and Course Evaluations to the State School Chairman.

# Form 12-2020 State Chairman Task Checklist

To complete form, download and save to your device, add your information, then save again.



## National Garden Clubs, Inc. Environmental, Gardening and Landscape Design Schools STATE CHAIRMAN TASK CHECKLIST

State Chairman  
Task Checklist  
Form 12-2020

Series \_\_\_\_\_ Course \_\_\_\_\_

Dates \_\_\_\_\_ Location \_\_\_\_\_

### REGISTERING A COURSE

#### Task Completed

Request approval from State Federation for a new series of Schools and supply budget if requested.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Register course with NGC ES or GS Accrediting Chairman or LDS Chairman – 3 months prior to course. Send Course Registration Form 1-2020, Course Information Form 2-2020, course flyer or brochure, and when received, Instructor's Credentials Form 3-2020 for each new instructor. Note: Form 2-2020 does not need to be sent concurrently with Form 1-2020 but as soon as possible.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Receive instructor's outlines and exam questions and answer key from Local Chairman – 5 weeks prior to course. Retain outlines and one copy of exams and answer key for file. Email one copy of exam and answer key to NGC Accrediting Chairman & LDS Instructors Chair.

Date received \_\_\_\_\_ Date sent \_\_\_\_\_ Date approval received \_\_\_\_\_

### ACCREDITING A COURSE

#### Task completed

Receive accrediting materials from Local Chairman – within 4 weeks following the course: Course Roster & Summary Form 5-2020 and check for testing students and refreshing consultants. Review this form for accuracy and make any necessary corrections. "Sign" the form where indicated by typing your name and date. Please do not insert a digital signature.

Date received \_\_\_\_\_

Prepare Application(s) for Accreditation Form 6-2020 for any students completing their fourth course. Prepare Consultant Refresher Accreditation Application(s) Form 7-2020 for any Consultants who refreshed.

Date form(s) prepared \_\_\_\_\_

#### UPDATE STATE CONSULTANT ELECTRONIC SPREADSHEET – See sample on NGC website.

Accredit course with NGC Accrediting Chairman - within 5 weeks following course completion. Email to Accrediting Chairman: Course Roster and Summary Form 5-2020, Application(s) for Accreditation Form 6-2020, Consultant Refresher Application(s) Form 7-2020 - where applicable. Mail check for student/consultant fees to Accrediting Chairman. When the Accrediting Chairman approves your forms, she/he will forward them and the check to the NGC Schools Secretary to record the accreditations at NGC Headquarters. The Accrediting Chairman will send you the Consultant, Master and/or Refresher cards for you to mail or deliver to each consultant. Retain a copy of all forms for state records.

Date materials sent \_\_\_\_\_ Date approval received \_\_\_\_\_

# Form 13-2020 Local Chairman Task Checklist

To complete form, download and save to your device, add your information, then save again.



## National Garden Clubs, Inc. Environmental, Gardening and Landscape Design Schools LOCAL CHAIRMAN TASK CHECKLIST

Local Chairman  
Task Checklist  
Form 13-2020

Series \_\_\_\_\_ Course \_\_\_\_\_

Dates \_\_\_\_\_ Location \_\_\_\_\_

### ORGANIZING A COURSE – more than 3 months prior to course

#### Task Completed

Consult with sponsoring entity – financial underwriter/sponsor. Request Approval.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Consult with State School Chairman to select location. Request Approval.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Consult with State School Chairman to select school dates. Request Approval.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Establish a budget and determine course fees. Request approval from sponsor as needed.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Establish and brief Local Committee members as necessary.

Request State Federation's ratification of series, location and dates from State School Chairman.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

### REGISTERING A COURSE – 3 months prior to course

#### Task completed

Prepare/develop course flyer or brochure. See sample brochure on each NGC school website. Submit to State Chairman for approval

Complete Course Registration Form 1-2020 and Course Information Form 2-2020. Email to State Chairman for approval. Note: Form 2-2020 does not need to be sent concurrently with Form 1-2020 but as soon as possible.

Date completed \_\_\_\_\_ Date sent \_\_\_\_\_

Receive Instructor's Credentials Form 3-2020 for each first time instructor.

Date requested \_\_\_\_\_ Date received \_\_\_\_\_

Email Instructor's Credentials Form 3-2020 to State School Chairman for approval.

Date sent \_\_\_\_\_ Date approval received \_\_\_\_\_

To complete form, download and save to your device, add your information, then save again.

## PREPARING FOR A COURSE

### Task Completed

Submit course date and registration information to state publication and/or state website. Print and distribute flyers as desired.

Date sent to website chairman \_\_\_\_\_ Date sent to publication editor \_\_\_\_\_

Receive instructor's outlines and, if applicable, examination papers and answer key - 6 weeks prior to course. (Local Chairman arranges for someone else to receive the exams if she/he is taking the course as a student.) Retain one copy of examinations and answer key for duplication and file. Email one copy to State Chairman.

Date requested \_\_\_\_\_ Date approval received \_\_\_\_\_

Duplicate instructors' outlines. Send to students as a study packet, if desired, or distribute in class.

Date sent \_\_\_\_\_

Duplicate exams, upon receipt of approval, for each testing student plus a few extras for last minute students wishing to take the exam and for the Proctor. Duplicate the answer key for distribution to testing students as they turn in their exams.

Send reminder notices to instructors – 2 weeks prior to course. Include travel, site instructions and cell phone number available, on site, for the day of the course.

Duplicate Student/Consultant Guide for distribution to students. See NGC school website for Guide.

Duplicate Evaluation Form 11-2020

Arrange for chairs, tables (if possible) and audiovisual equipment. Arrange for refreshments – morning, afternoon snack and lunch.

Prepare nametags using a large font, or something similar, to enable instructors and attendees to see the name of each attendee easily.

Prepare Daily Attendance Cards Form 16-2020 to be given to students upon registration/sign-in at the Course. Use to track all sessions are attended.

## ACCREDITING A COURSE

### Task Completed

Have exams graded and return to students.

Prepare Course Roster and Summary Form 5-2020

Prepare Accreditation Application Form 6-2020

Prepare Refresher Accreditation Application Form 7-2020

Send accrediting materials, Form 5-2020, Form 6-2020 and Form 7-2020 (if applicable) to State School Chairman – within 3 weeks of the course completion along with check (payable to NGC) for fees for testing students and refreshing consultants. Send all forms by email and check by postal mail.

Date materials sent \_\_\_\_\_ Date approval received \_\_\_\_\_

## Section 3 – Conducting the School

### Instructors and Areas of Expertise

- Instructors of required and tested subjects must be persons academically associated with a department of a college or university or be professionals who are specialists in their field. They should have experience in teaching and/or lecturing.
- Instructors for supplemental subjects, tours, etc. must be well-informed and employed and/or involved in some field of the subject and/or profession. Possible qualified instructors include extension agents, retired professors, high school teachers, Department of Natural Resources personnel, college interns, landscape architects, environmentalists, Master Gardeners and nursery personnel.
- Eligibility to teach an approved subject is valid for 10 years.
- Instructor Credentials, Schools Form 3-2020, will be maintained for ten years.
- For Landscape Design School, specific areas of expertise per topic, per course (previously contained in Form LDS 2C) are contained in Section 10 - Landscape Design Schools in this Handbook.

### Instructors' Duties

- Prepare a detailed teaching outline expanding on and developing the curriculum subject matter. Provide a typed simple outline of the lecture to be presented. An abbreviated PowerPoint presentation is acceptable. This should be suitable for student use and will be included in a Study Manual or packet for distribution to each registrant in the course.
- Each instructor is required to present the information in a clear manner with up-to-date visual materials and information in a continuing education format for an audience composed of garden club members and the public.
- Instructors, who teach a subject on a regular basis, should routinely update all presentation and examination materials.
- Provide additional materials of special local value or information to topic.
- Prepare an exam, if required and submit exam and answers to Local Chairman **at least six weeks prior to the course date for approval.** (*Questions should require students to memorize only those things that will make them better gardeners. Only multiple-choice questions are allowed. No true/false or open-ended questions are allowed. Avoid questions that are ambiguous, tricky, confusing or wordy.*)

## Section 4 – Courses

### Scheduling Courses

- **Length of Time:** Each Course consists of a number of classes/subjects that may vary per School. It is generally conducted over a two-day period and **must total ten hours of instruction which includes tours and question and answer periods.** Breaks are NOT counted as part of the 10-hours of instruction.
- Two-day Courses may be scheduled at intervals according to local preference.
- School Courses are open to everyone and students are not required to be members of garden clubs.

### Taking Courses

- **Order Taken:** Course 1 to 4 of each school may be taken in any order - sequential is preferred.
- **Length of Time to Complete the Course:** From the date of the first course taken in any school, the student must complete all courses in that school by the end of the **seventh calendar year** or all course credits expire.
- **Student Completion Extension:** If a student cannot complete all four courses within that time period, the student may request (in writing to the State Schools Chairman) an extension of time to complete all courses before losing all credit. (*Schools Form 9-2020 on NGC Website*) If granted by the appropriate NGC Schools Chairman, an extension will be given to a student to the end of the next calendar year. One subsequent request may be made to extend such extension one additional year.
- **Chairman Needing a Course:** A Chairman who is not already a Consultant may take courses for credit if arrangements are made for others to handle and reproduce the exams.
- **Requirements:** Students and consultants are required to read *The National Gardener* (TNG), the official publication of NGC, and the official source of news and updates about all schools (available online at the NGC website).

### Course Exams

- **Number of Exams Given:** Exams are given for each class subject except GS and LDS supplemental subjects and ES field trips. The number of questions on an exam will vary depending on the length of the lecture unless otherwise noted. See the Handbook section for each school to see which subjects are tested and the number of questions per subject.
- **Who Takes Exams:** Course exams are optional; however, students who want to obtain Consultant status are required to take them. Refreshing Consultants are not required to take the course exams, but may take the exams for the educational experience without scores being recorded.
- **When Exams Given:** Exams are administered, as the Local Chairman deems appropriate - at the end of each class session, at the end of each day of instruction or at the end of both/all days of instruction.
- **Type of Exam:** All exams are multiple choice, open book/open note.
- **Length of Exam:** No more than a total of three hours is allocated for completion of all exams per course.

- **Exam Scoring:** Exams are scored to determine that at least 70% of the total questions are answered correctly (in order to receive a pass). Proctors, other local OR state chairmen or the instructors may grade the exams. Exams must be scored to determine that an overall pass grade is achieved, but specific scores are not tracked or retained.
- **Student Exams:** Students should be given copies of the examination key at the conclusion of the course and have their graded exams returned to them.
- **Non-Passing Grade:** If a student fails an exam, the exam may be retaken within three months under the supervision of a Proctor.

### **Student Missed Course or Part Thereof**

#### **(Due to unexpected circumstances)**

- An approval of the State Chairman and NGC Accrediting Chairman must be obtained to be allowed to give a make-up class.
- Proctor or local chairman may utilize an instructor led make-up of materials
- If instructor is unable to lead a make-up, a proctor or local chairman may lead a review of the material.
- An examination of missed material will then be given within three months after obtaining approval.

### **Proctors**

- Assure that the instructors have covered all questions on the exam at the conclusion of each presentation.
- Will have access to the exam questions and answers **during the lecture and will review material covered in class with all participants prior to administration of the exams.**
- Are present during testing to assure that each student's work is his or her own
- May grade exams and return them to Local/State Chairman
- **It is highly recommended that Proctors be Consultants** in the specific School.

## Section 5 – Status Conditions that Affect Consultants

### Certification

- **To achieve certification (Consultant status)**, a student must attend all course lectures, fulfill all class time requirements, take and pass all exams (on a pass/fail basis) of all four courses in a school and must be a member of an NGC garden club or become a member within one year of completing the series. Upon completion of the above requirements, a Consultant Certification Card will be issued.
- *This certification as a Consultant is not a professional or academic designation, but it is considered a significant achievement among NGC members.*
- **Certificates of Completion** may be awarded by the Local or State Chairman to non-member students who complete a course in a school. See Certificate Schools Form 15-2020.

### NGC Consultant's Pins

When Consultant status is obtained NGC Consultant pins may be purchased from Member Services at NGC Headquarters in St. Louis, MO. To order by telephone or online see the Member Services section of the NGC website [www.gardenclub.org](http://www.gardenclub.org).

### Status Eligibility

- **Provisional status:** After passing the exams of two courses of any school, a student becomes a Provisional Consultant in that school and is eligible to join a Council.
- **Consultant status** is attained upon completion of all four courses of a school and fulfillment of all the above requirements for that school.
- **Non-garden club members** who have completed all courses and passed all exams may become Consultants by joining a NGC garden club within one year of completion of the school series.
- **Lapsed Consultants** may be reinstated within a seven-year time period from the last year of certification (within two years of the date of lapse) by completing two courses of the specific School (exams are not required for reinstating consultants as they previously took the exams in order to become Consultants). Reinstatement returns the Consultant to Good Standing. If, for example, a Consultant had taken two refreshers and then lapsed, reinstatement brings the Consultant back to Good Standing with credit for two refreshers. The next refresher for credit may be taken at any time after the first of the next calendar year following reinstatement. (*See Schools Form 10-2020 on NGC Website*)
- **Master Consultant** status is achieved by receiving credit for four refreshers. Upon qualifying as a Master Consultant, a Master Consultant card is issued. Master Consultants are required to continue refreshing every five years.
- **Emeritus Status** may be granted. If while in **Good Standing** a **Master Consultant** is unable to continue refreshing, they apply (in writing to the State Schools Chairman) for Emeritus status. If granted by the appropriate NGC Schools Chairman, an Emeritus Consultant card is issued. This status does not expire and the Emeritus Consultant is no longer required to take refreshers and may maintain Council membership as permitted by Council bylaws. (*See Schools Form 8-2020 on NGC Website*)

### Maintaining Certification and Refreshing

- **To maintain certification**, Consultants and Master Consultants must be members of a NGC-member garden club, refreshing their credentials by the end of the fifth calendar year from their last certification.

- **Refresher credit** for Consultants and Master Consultants will be granted only **once** within a calendar year beginning in the year following receipt of Consultant or Master Consultant certification.
- **Refresher credit is obtained by**
  - ◆ Attending all lectures of a course in the school for which credit is sought, no examination required. OR
  - ◆ Attending a single-subject refresher approved by the NGC Chairman of that school. OR
  - ◆ Attending a multiple (Bi- or Tri-) refresher approved by the NGC Multiple Refresher Chairman.
  - ◆ See Multiple Refresher pages on NGC website for more information.
- **Good Standing Date** is defined as the end (December 31) of the **fifth calendar year** after becoming a Consultant or after refreshing. A Consultant is in Good Standing for the entire period up to that date and lapses (loses Consultant status) the following day.
- **Extensions** If a Consultant is unable to refresh by the end of the fifth calendar year following the last certificate date, the Consultant may request (in writing to the State Schools Chairman prior to lapsing) an extension of time to refresh. If granted by the appropriate NGC School's Chairman, the Consultant will be given an extension to the end of the next calendar year. One subsequent request may be made to extend such extension one additional year. (*See Schools Extension Form 9-2020*)
- **Transfer of Records** When Consultant moves to another state, it is her/his responsibility to notify the current State Chairman of the move and provide new contact information and request that that records be transferred to the State Chairman in the new state of residence. (*See Schools Consultant Moving, Death or Removal Form 14-2020 on NGC website*)

### Certification Cards

- **A Consultant Card** is issued which indicates the date of completion of the fourth course, (date Consultant status was achieved) and the date that Good Standing as a Consultant will expire.
- **A Master Consultant Card** is issued which indicates the date of completion of the fourth refresher (date Master Consultant Status was achieved) and the date that Good Standing as a Master Consultant will expire.
- **Consultant Refresher Card:** After completion of each refresher for credit, a Refresher card is issued which indicates the date the Consultant completed the refresher and the date that Good Standing as a Consultant will expire.
- **Master Consultant Refresher Card** will indicate the date of the event and the date that Good Standing as a Master Consultant will expire.
- **Emeritus Consultant Card** will indicate the date Emeritus status was granted.
- **Consultant and refresher cards** will be issued, with each new administration, by the NGC Schools Secretary to the Accrediting Chairman. The Accrediting Chairman fills in the date of the course/refresher and date Good Standing will expire, then sends the cards to the State Chairman in the state where the consultant's records are maintained. If there is no state chairman, the Accrediting Chairman sends the Consultant's Card directly to the Consultant.
- **Certificates of Attendance/Completion** may go to those who do not become consultants (*See Schools Form 15-2020 on NGC website*)

### Records

- *Consultant cards are not the official record of Consultant status.*
- The **official record** of that status is contained in the official state schools records of the Consultant's state of residence (or some other state where arrangements have been made to maintain those records) and in the official schools records at NGC Headquarters.

- State and NGC records should be in sync.
- It is the responsibility of Consultants to maintain a record of courses attended, Consultant certification date, refreshers attended and dates that Good Standing will expire.
- **Student records are maintained at the state level for eight years.** Consultant records are maintained at the state and national levels for eight years. If there has been no course or refresher activity within this period, the individual's records are removed from all files.

### **Four Star and Five Star Members**

Becoming a Four and Five Star Member is an awards/recognition program, recognizing achievement as of a point in time. The Consultant must apply for this permanent/lifetime recognition. Achievement of this recognition does not eliminate or alter any Schools requirements regarding Refreshers and maintaining Good Standing.

- **NGC Four Star:** Those who complete all four NGC Schools, becoming Environmental, Gardening and Landscape Design Consultants and Flower Show Judge are eligible to be recognized as NGC Four Star Members. Upon achieving Four Star status, Consultants must continue to refresh as stated in handbook for each particular school in order to achieve Master Consultant status.
- **NGC Five Star:** Those who achieve Master status in all four schools are eligible to be recognized as NGC Five Star Members. Upon achieving Five Star status, Master Consultants must continue to refresh to remain in Good Standing. They may request and receive extensions or Emeritus status or lapse and cease to be Master Consultants.
- **See information and forms on the NGC website**
  - ◆ <https://www.gardenclub.org/four-and-five-star-membership>

## Section 6 - Refreshers

State Garden Clubs and Councils are encouraged to expand their educational programs by sponsoring various activities in the form of symposia, conferences, forums, etc. Such events may be set up to meet eligibility requirements to be an accredited Refresher, providing refresher credit to eligible Consultants. Certain academic courses taken in recognized professional curricula may also be used as a refresher course.

### Duties and Objectives

**Duties of Refresher Chairman** are generally the same as for those involved in conducting school courses except that the chairman does not have to plan for exams with a refresher.

**Objectives:** To provide greatly expanded educational opportunities; to allow Consultants to receive refresher credit outside regular School courses that they have already taken at least once; to interface with NGC Consultants and learn new subject matter from the other NGC schools as in the case of a Multiple Refresher.

### Single-subject Refreshers

- **Hours** – a single-subject refresher must be comparable in scope to a regular school course with at least eight hours of instruction and/or tours. Breaks are **NOT** counted as part of the eight hours of instruction. The refresher may include as many additional hours of tours, instruction, etc., as the chairman wishes.
- The refresher **must clearly indicate a depth of study** that fosters the highest standards of continuing education in the applicable school subject.
- **Attendance is mandatory** at all activities for a refreshing Consultant to receive credit.
- **Requests for Approval** The outline and/or printed brochure or program schedule, including the names of lecturers, must be sent to the NGC Schools Chairman along with the Registration and Course Information Forms (*See Schools Form 1-2020 and Schools Form 2-2020 on NGC Website*). The State Schools Chairman is responsible for preparing this application. Requests should be sent at least three months prior to the event.

### Multiple Refreshers

Refreshers may be **Multiple Refreshers**, using the Steps for Multiple Refreshers, Multiple Refresher Chart and Forms on the Multiple Refresher section of the website.

- **See information and forms on the NGC website**
  - ♦ <https://www.gardenclub.org/multiple-refreshers>

## Section 7 – General Information for Common Forms for ES, GS & LDS

Forms are available online at the NGC website. Be sure you have installed Adobe Acrobat Reader DC on your device. Please download and save forms to your computer. Then complete the downloaded form(s) and save the form(s) again with the appropriate school title Sign by typing your name (DO NOT insert digital signature) and save again. Send as email attachments to whoever is required to receive them. Maintain copies for your records. *Follow instructions on forms*. Use Arabic numbers to designate series and course number. **Use online fillable forms only. The most current version of any form will always be available online.**

### General Instructions for all Forms

All chairmen must follow these instructions with regard to completing forms unless otherwise noted.

- One set of forms (Form 1 and other forms as applicable) is required to be submitted for each of the four courses.
- The Local Chairman completes the forms electronically and emails them to the State Chairman.
- The State Chairman reviews and electronically approves, where indicated on the forms, and emails them to the appropriate NGC Chairman.

### Form 1-2020 Registration Form for ES, GS & LDS

Replaces forms (ES 1-2014), (GS 05-1); (LDS 1)

Complete this form to register any School Course or any Single-subject Refresher. This form places your event on the NGC website and in *Keeping in Touch*. You do not need to contact website or KIT personnel directly.

- Submit this form as soon as the information is available and the event has been approved by your state organization and at least three months prior to event.
- Landscape Design School - Registration Form 1-2020 needs to be submitted to the NGC LDS Chairman.
- Follow-up if you do not receive an email acknowledgment from the applicable NGC Schools Chairman within a week.
- *To register Multiple Refreshers, use the forms and follow the Steps for Multiple Refreshers found on the Multiple Refreshers page of the NGC website.*

### Form 2-2020 Course Information Form for ES, GS & LDS

Replaces forms (ES 1-2014), (GS 05-1), and (LDS 2a/b)

Complete this form to get your courses, supplemental subjects and instructors approved.

### Form 3-2020 Instructor Credentials Form for ES, GS & LDS

Replaces forms (ES 2-2010), (GS 05-6), and (LDS 4a)

Complete form for any instructor who is teaching a specific class for the first time or whose credentials were approved more than ten years ago. Send to State Chairman who sends the form to the NGC ES or GS Accrediting Chairmen or the LDS Instructors Chairman.

### Form 4-2020 Instructor Contract

Replaces forms (ES 3-07), (GS 05-7), and (LDS 4b)

Once an instructor is approved/credentialed, the Local Chairman may contract with the instructor to provide services to the school. **This is an optional form for that purpose, for the benefit of the specific school. It is not submitted to NGC.**

### **Form 5-2020 Course Roster & Summary Form for ES, GS & LDS**

Replaces forms (ES 4-2014), (GS 05-2, 05-3, 05-4), (LDS 5a/b, 6a/b, and 7)

This form is for the purpose of recording a course or event upon its completion and accrediting the students and refreshing consultants.

- At the conclusion of each School Course or Single-subject Refresher, the Local Chairman completes Form 5-2020 electronically and emails it to the State Chairman.
- The State Chairman reviews it for accuracy and submits it electronically to the appropriate NGC Accrediting Chairman.

### **Form 6-2020 Application for ES, GS or LDS Accreditation**

Replaces forms (ES 5-2014), (GS 05-8, 05-10), (LDS 8a)

This form causes the student to be recorded as a Consultant in the state and NGC records and causes the Accrediting Chairman to complete a Consultant Card.

- Upon completion of a student's fourth course in a School, the State School Chairman completes this form and submits it electronically to the appropriate NGC Accrediting Chairman for review and approval and electronic submission to the NGC Schools Secretary.
- A Consultant Card will be sent to the State School Chairman for delivery to the Consultant.
- **Failure to submit this form will prevent the student from being recognized as a Consultant.**

### **Form 7-2020 Consultant Refresher Accreditation Application**

Replaces forms (ES 6-2014, 7-2014, 8-2014), (GS 05-9, 05-11), (LDS 8b)

This form causes the Consultant to be recorded as having completed a Refresher in state and NGC records, causing the Consultant's Good Standing date to be updated.

- Each time a Consultant completes a Refresher for credit, the State School Chairman completes this form or reviews and approves the form if it is completed by the Local Chairman.
- This causes the Accrediting Chairman to complete a Refresher Card that is sent to the State School Chairman for delivery to the Consultant.
- Upon completion of the fourth Refresher, the Consultant is noted in state and NGC records as a Master Consultant, and the Accrediting Chairman completes a Master Consultant Card that is sent to the State School Chairman for delivery to the Master Consultant.
- **Failure to submit this form will prevent the student from receiving refresher credit and/or from being recognized as a Master Consultant.**

### **Form 8-2020 Application for ES, GS or LDS Emeritus Status**

Replaces forms (ES 9-2012), (GS 05-13), (LDS 8b)

Master Consultants in Good Standing who are unable to refresh within the required timeframe may complete this form requesting Emeritus status.

- The State School Chairman verifies their eligibility and forwards the form electronically to the NGC Accrediting Chairman.
- NGC Accrediting Chairman approves the form and forwards it electronically to the NGC School's Secretary.
- The Emeritus Card is sent by the NGC Schools Secretary to the Consultant with a copy of the cover letter to the State School Chairman, who records the Consultant as an Emeritus Consultant.

### **Form 9-2020 Application for Student/Consultant Extension**

Replaces forms (ES 10-2014), (GS 05-14), (LDS 9)

This form is used for two different situations:

1. Students who have not completed all four courses of a School by the end of the seventh calendar year since taking the first course may request a one-year extension to complete all courses. If the student does not complete all courses by the end of the seventh calendar year or receive an approved extension, credit expires for all courses.
2. Consultants in Good Standing who are not able to refresh by the end of the fifth calendar year since becoming a Consultant or since the last Refresher taken for credit may request a one-year extension of time to refresh.
  - Extensions for both situations may be extended one additional year upon approval prior to the end of the first extension period.
  - The form is completed by the student/consultant and submitted electronically to the State School Chairman who approves it and submits it electronically to the NGC Accrediting Chairman.
  - Upon approval by the NGC Accrediting Chairman, the form is forwarded electronically to the NGC Schools Secretary and the State School Chairman who record the extension.
  - The State School Chairman informs the student/consultant.
  - **Failure to submit this form when needed results in**
    - ◆ **the student losing all credit towards becoming a Consultant**
    - ◆ **the Consultant/Master Consultant lapsing and losing Consultant or Master Consultant status**

### **Form 10-2020 Application for ES, GS or LDS Reinstatement**

Replaces forms (ES 11-2014), (GS 05-15), (LDS 10)

Lapsed Consultants who did not refresh by the end of the fifth calendar year following becoming a Consultant or last refreshing for credit may reinstate their certificate by completing two courses of the School in which they lapsed within a two-year period following the lapse. This must be done by the end of the seventh calendar year following becoming a Consultant or last refreshing for credit.

- To avoid confusion, the form should be initiated prior to attending the two reinstating courses by submission to the State School Chairman.
- The State School Chairman will submit the form to the NGC Accrediting Chairman, who records that a reinstatement is in process.
- Upon the completion of the two courses, that information should be added to the form by the State School Chairman who submits it electronically to the NGC Accrediting Chairman.
- Upon approval by the NGC Accrediting Chairman, the form is forwarded electronically to the NGC Schools Secretary and the State School Chairman who both record the Consultant as reinstated.

### **Form 11-2020 Evaluation Form**

Replaces form (LDS 11a/b)

This form has two sides, one for evaluation of the instructors and one for evaluation of the subjects.

- This form should be given to students/consultants attending all School courses.
- Using the evaluation numbers provided, the Local Chairman tabulates the scores and reviews the forms to consider changes that might improve subsequent courses in a specific School series.
- The forms (or copies of them) should be forwarded to the **State School Chairman** and **NGC School Chairman** for similar review.

**Form 12-2020 State Chairman Task Checklist**

This is the Task List for Environmental, Gardening or Landscape Design State School Chairman to help accomplish workload and project the anticipated time line. It informs you of work to be accomplished and allows you to check off tasks as they are completed. This is for your use and is not to be sent anywhere. In some cases, the State Chairman also serves as the Local Chairman, in which case both checklists need to be followed.

**Form 13-2020 Local Chairman Task Checklist**

This is the Task List for the Local Chairman of the school. Please note, sometimes this is the same person as the State Chairman. This list facilitates planning and submitting required forms in a timely manner to the State Chairman or your Accrediting Chairman. The form provides instructions for completing tasks to assure accreditation for everyone.

**Form 14-0219 Consultant Moving, Death or Removal**

This form is filled out by the State Chairman and sent to the Accrediting Chairman of the appropriate school so that records may be moved or eliminated as the case warrants. The Accrediting Chairman notifies the NGC Schools Secretary.

**Form 15-2020 Certificate of Completion**

This is the Certificate of Completion that may be awarded by the Local or State Chairman to the attending student who is not a Garden Club member. They may receive a certificate after completion of each course or at the end of a series. If attendee needs an official record for work – use this certificate. Taking the exam may be expected by employers.

**Form 16-2020 Daily Attendance Cards**

This optional form is for the Local Chairman/Registrar to track accurate attendance. Simply complete the form, using extra pages as needed, and cut apart. It is easiest to put in attendees' notebooks. Have attendees place cards at their seat, then punch or mark the appropriate space for the period indicated. In larger class settings it is an easy way assure everyone gets appropriate credit. Once your roster is complete, you do not need to keep it. They go nowhere else.

## Section 8 – Environmental Schools

### NATIONAL GARDEN CLUBS, INC. THE LIVING EARTH ENVIRONMENTAL SCHOOL

#### History, Description, Mission, Goals & Objectives

In May of 1991, the NCSGC Board approved a motion to create a school of Environmental Studies. This was accomplished by Violet Dawson, NCSGC President 1991-1993 and her administration. The development of the school was directed to the Environmental Education Committee.

To give workable form to environmental education, which has been called the entire fabric of human knowledge, was an awesome charge and challenge even though this chairman (Sue Daugherty) brought three decades of experience in this discipline. The magnitude of the responsibility to create a school worthy of NCSGC demanded much research and the gathering of ideas from members and environmental professionals from across the country.

History was made when the pilot course of The Living Earth Environmental Studies School opened April 1, 1993, at the Mosquito Hill Nature Center, New London, Wisconsin. Grateful thanks to Chairman Julie Schoenike, State President Liz Murken, Violet Dawson and Dr. John Kirk.

Strong support for this fledgling program was given by Eleanor Yates, NCSGC President 1993-95 and was supported by Mary Louise Michie, NCSGC President 1995-1997. During the past four years (1993 – 1997), the NGC Environmental Schools have been initiated by the State Garden Clubs of New York, Florida, South Carolina, Washington, Tennessee, Illinois, Indiana, Georgia, California, Colorado, Massachusetts, Maine, West Virginia, Michigan, Pennsylvania, Texas, Wisconsin and Kentucky.

#### DESCRIPTION

The Living Earth Environmental School is composed of a minimum of forty hours of study of specific units divided into four courses of ten hours each that includes a two-hour field trip. The courses investigate AIR, LAND and WATER. The units are divided into Ecology and Environmental Science, Life on Earth and Earth Stewardship.

A multiple-choice examination (open book/open note) on the lectures and recommended reading is optional. Exams must be taken by those who want to be certified as an Environmental Consultant.

#### MISSION STATEMENT

To teach environmental literacy to cherish, protect and conserve the living earth.

#### GOALS AND OBJECTIVES

- A. Develop a citizenry that is *aware* of, and concerned about, the total environment and its associated problems, and which has the *knowledge, attitude, motivation, skill* and *commitment* to work individually and collectively toward solutions of current problems and the prevention of new ones.
- B. Promote the NGC, Inc. Environmental School.
- C. Foster value systems that preserve the biotic community.
- D. Increase awareness of the interdependencies of life on earth.
- E. Prevent pollution to protect public health and heal the planet.
- F. Help citizens become involved with their communities and the natural world.
- G. Network and reach out to all segments of the community to achieve common goals.

- H. Encourage conservation education programs in all levels of garden club activity.
- I. Promote the inclusion of environmental education in classrooms and youth organizations throughout the country.
- J. Establish Environmental Councils to provide opportunity for personal growth and community service for NGC, Inc. Environmental Consultants and Provisionals.

**Environmental Literacy Definition**

Environmental literacy is a learning process concerned with the interrelationship within and between the various components of the natural and human-made world producing growth in the individual and leading to responsible stewardship of the earth.

## Why Environmental Education

As man became progressively urbanized, his intimate association and interaction with natural resources diminished and with it his awareness of his dependency on them. It is imperative that man comprehends that his welfare is dependent upon the “proper” management and use of these resources.

Our communities are being plagued with lack of comprehensive environmental planning; indiscriminate use of pesticides; community blight; air and water pollution; traffic congestion; and the lack of institutional arrangements to cope effectively with environmental problems. These problems are legitimate concerns of community governmental officials and planners. The responsibility for their solutions rests, largely, with citizens.

Citizens cast votes on community issues; they elect representatives to policy-making bodies; they directly act upon the environment itself. Ask informed questions, serve on advisory and policy-making committees, support sound legislation directed at resolving environmental problems. Be knowledgeable, aware and motivated to work toward effective solutions.

It is important that each individual obtains a fuller understanding of the environment, problems that confront it, the interrelationship between community and surrounding land, and opportunities for the individual to be effective in working toward the solution of environmental problems.

This new approach, designed to reach citizens of all ages, is called “environmental education.” Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.

The major objectives of environmental education are to help individuals acquire:

1. A clear understanding that man is an inseparable part of a system consisting of man, culture, the biophysical environment, and that man has the ability to alter the interrelationships of this system.
2. A broad understanding of the biophysical environment, both natural and man-made and its role in contemporary society.
3. A fundamental understanding of the biophysical environmental problems confronting man, how these problems can be solved, and the responsibility of citizens and government to work toward their solution.
4. Attitudes of concern for the quality of the biophysical environment that will motivate citizens to participate in biophysical environmental problem solving.

Attitude implies a combination of factual knowledge and motivating emotional concern that result in a tendency to act. To achieve its greatest impact environmental education must:

1. Provide factual information which will lead to an understanding of the total biophysical environment
2. Develop a concern for environmental quality which will motivate citizens to work toward solutions as to biophysical environmental problems
3. Inform citizens as to how they can play an effective role in achieving the goals derived from their attitudes.

The University of Michigan, School of Natural Resources (Reprinted from the original ES Handbook)

# NATIONAL GARDEN CLUBS, INC.

## ENVIRONMENTAL SCHOOL CURRICULUM

### Course 1 – The Living Earth 10 HOURS

#### ECOLOGY

1 hour 5 exam questions

- Introduce and explain the Four Major Components of Earth’s Life Support System: atmosphere (air), hydrosphere (water), geosphere (rock, soil, and sediment), and biosphere (living things).
- Study the major components of an Ecosystem: Community, Population, Organism and Species.
- Explore environmental challenges and opportunities – human population and its impact on the environment (harmful and beneficial effects of affluence vs. harmful and health effects of poverty).
- Recognize that consumers are not currently required to pay for the full environmental costs of an ever-consuming society (i.e. recycling of computers and electronic devices).

#### PLANTS - BIODIVERSITY

1 hour 5 exam questions

- Explore the role of species in an ecosystem, including evolution, causes of extinction, genetic variation and ecosystem diversity. Include examples of protective mechanisms and sensitivities to environmental change.
- Study a species in depth to validate that every species has value and a role to play in its ecological niche.

#### ENVIRONMENTAL SCIENCE

1 hour 5 exam questions

- Examine the principles of environmental science.
- Identify non-renewable (coal, oil, nuclear, natural gas etc.) and renewable resources (wind, solar, hydropower, geothermal biofuels, etc.)
- Acknowledge the aspects of pollution, consumption, technology and economic factors of non-renewable, renewable and perpetual resources.
- Explore ways to conserve “wasted energy” and avoid loss through “vampire power.”
- Discuss how renewable resources can be wisely managed to achieve balance and sustainability.

#### ENVIRONMENTAL ISSUES

1 hour 5 exam questions

- Realize that earth is finite and has a carrying capacity. Understand the “Tragedy of the Commons.”
- Identify some of the beneficial and harmful impacts that humans have on the environment. Identify problems managing and disposing of solid waste.

#### BACKYARD WILDLIFE HABITAT

1 hour 5 exam questions

- Explore methods of creating habitat for wildlife in home, school, public and commercial settings that incorporate energy conservation, pest reduction and soil health without sacrificing recreational and aesthetic considerations.
- Discuss designing home landscapes to achieve maximum benefit for the care and protection of wildlife. This includes the study of planting practices, providing food, water, nesting sites and habitat enhancement.

**NETWORKING AND OUTREACH**

1 hour

5 exam questions

- Explore ways to work effectively with individuals, organizations, institutions, businesses, industry and government in the pursuit of common goals beneficial to the earth and life on earth.
- Investigate ways in which NGC, Inc. environmental service programs may be shared with others; emphasizing ways in which garden club members and the community groups may exchange current priorities and information.
- Realize the potential of enriching lives by working with others to heal the earth.

**HISTORIC ENVIRONMENTAL ACTIONS AND LEADERS**

1 hour

5 exam questions

- Study the history of human actions that has had far-reaching impacts on the environment, both positive and negative.
- Learn about the evolution of environmental education and why it the key to the survival of life on earth.
- Examine landmark legislation to preserve and protect the environment, such as the Wilderness Act, the Clean Air Act, the Clean Water Act and the Endangered Species Act, when they went into effect and their current status.
- Review the works of selected philosophers and writers on the environment with special emphasis on the books on the Supplemental Reading List (See Page 40) for Environmental School (i.e. Rachel Carson, Aldo Leopold, Gifford Pinchot and Thoreau).

**SUSTAINABILITY**

1 hour

5 exam questions

- Realize that “Sustainability” is not limited to reducing; reusing; recycling; composting; practicing energy conservation; using alternatives to toxics; preventing pollution and employing the ‘using less is more’ philosophy (“Green Energy”, “Zero Energy”).
- Understand that “Thinking globally/Acting Locally and Committing Personally” is necessary when accepting responsibility for one’s personal actions. Identify your “Carbon and Ecological Footprint(s).”
- Pledge to work with others who will bring about change that will make the world a better place.

**COURSE REVIEW AND WRAP-UP** - Proctor or Appointee by State ES Chairman**NATURE DISCOVERY FIELD TRIP**

2 hour minimum

- Visit a **natural** area to study ecology under the direction of trained environmental educational facilitators.

**NATIONAL GARDEN CLUBS, INC.**  
**ENVIRONMENTAL SCHOOL CURRICULUM**

**Course 2 – Land and Related Issues**  
**10 HOURS**

**ECOLOGY – LAND**

1 hour

5 exam questions

- Study various land types (forests, grasslands, deserts, mountains); their origins, characteristics and the life forms they sustain. Investigate land management practices of public, private and natural areas.
- Recognize types of soil degradation/ compaction and soil erosion with a focus on soil renewal and reclamation.
- Discover how cities can be made more livable and sustainable through wise urban land use, the how and why of land conservation.

**PLANTS – AGRICULTURE**

1 hour

5 exam questions

- Explore the origin of food plants, and food production. Understand the problems associated with world food production such as distribution protection of the genetic pool and farmland preservation.
- Identify the limiting factors in food production such as soil qualities, water resources, insects and fungi.
- Investigate the qualities of sustainable agricultural systems and soil renewal. Identify methods of sustainable food production and benefits of purchasing locally grown food (Community Sustainable Agriculture)
- Recognize the positive and negative effects of Modified Genetics on food, animals and environment.
- Understand the impacts of corporate farming on human and ecological health.

**SOURCE REDUCTION OF POLLUTANTS, TOXICS AND MATERIALS**

1 hour

5 exam questions

- Examine pollution abatement through utilization of recapturing and recycling of materials. Identify possible sources and risk factors of toxins and possible diseases in the environment.
- Explore techniques of pollution control applying the principles of sustainability. Understand the basics of laws such as Resource Conservation and Recovery (RCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substance Control Act (TSCA).
- Explore green technology.

**COASTAL ZONE MANAGEMENT**

1 hour

5 exam questions

- Realize the values, uses and functions of coastal zone ecosystems.
- Identify stress factors and pollution problems in coastal areas; management techniques involved in the protection of these vital resources, including the Coastal Zone Management Act.

**ENVIRONMENTAL SCIENCE – RESOURCES**

1 hour

5 exam questions

- Study of the earth’s resources, renewable and finite (Solar, hydropower, wind, biofuel, geothermal) including their distribution around the world; how economic factors and population impact these resources.
- Identify methods of extracting resources such as hydraulic fracturing, aka fracking.
- Emphasize the 5 R’s of earth care: Reduce, Reuse, Recycle, Rebuy and Rethink.
- Identify types of “wasted energy”, “vampire power,” and making transit more sustainable.

**WILDLIFE – ANIMALS – THE MISUNDERSTOODS**

1 hour

5 exam questions

- Explore and acknowledge the value of animals and organisms such as reptiles, bugs, bats, worms, fungi and microorganisms.
- Understand their positive contributions in the web of life.

**SUPPLEMENTAL SUBJECT**

1 hour

5 exam questions

- Select a topic from “Approved Supplemental Subjects” (page 36)

**EARTH STEWARDSHIP - GARDENING WITH NATURE**

1 hour

5 exam questions

- Study the landscaping of home and public grounds applying conservation principles with understanding and respect for site limitations. Topics may include but are not limited to: landscaping for energy efficiency; planting native plants and wildflowers; composting; water conservation; integrated pest management; application of chemicals and fertilizers; and providing wildlife habitat, nesting sites, water and food plants.
- Identify invasive plants recognizing their negative impact on the environment.
- Identify eco-friendly management principles to control and/or mitigate invasive species impact(s).

**COURSE REVIEW AND WRAP-UP** - Proctor or Appointee by State ES Chairman**NATURE DISCOVERY FIELD TRIP**

2 hours minimum

- Visit a **natural** area emphasizing land issues under the direction of trained environmental education facilitators.

**“A thing is right when it tends to promote the integrity, stability and beauty of the biotic community.  
It is wrong when it tends otherwise.”**

***Aldo Leopold***

**NATIONAL GARDEN CLUBS, INC.**  
**ENVIRONMENTAL SCHOOL CURRICULUM**

**Course 3 – Air and Related Issues**  
**10 HOURS**

**ECOLOGY – AIR**

1 hour

5 exam questions

- Study the qualities of air including temperature, climate and chemical composition, as well as the relationship of climate and vegetation in determining climate.
- Review of the global warming issue, protection of the ozone layer, acid deposition and the implementation and impact of the Clean Air Act with emphasis on air quality and climate control.

**PLANTS – THE RAIN FOREST**

1 hour

5 exam questions

- Explore rain forests, their functions, ecology and significance to earth's critical systems.
- Study the causes of tropical deforestation and biodiversity loss.
- Investigate actions that citizens, institutions, businesses and nations can take to halt the destruction of tropical forests.

**ENVIRONMENTAL ETHICS**

1 hour

5 exam questions

- Learn how to foster a value system of right and wrong which respects earth, life on earth, and the interdependence of all nature.
- Understand the moral duty, obligations and principals of responsible earth citizenship, ecosystem protection and healing.
- Investigate what actions are needed by individuals, families, communities, religious centers, businesses, industries and political bodies for sustainable development to ensure resources for the current and future generations.

**ENVIRONMENTAL SCIENCE – POLLUTION (OUTDOOR)**

1 hour

5 exam questions

- Investigate outdoor air pollution (natural and man-made), their effects on plants, animals, structures, the environment and human health.
- Review air pollution laws and regulations.
- Examine progressive programs in pollution abatement, minimization and safe disposal of toxics, include what citizens can do to reduce pollution and toxics and minimize exposure to UV rays in their daily lives.

**ENVIRONMENTAL SCIENCE – POLLUTON (INDOOR)**

1 hour

5 exam questions

- Investigate common indoor air pollutants (natural and man-made), the effects on plants and risks to animals and humans.
- Identify and explore some of the indoor air pollutants - mold, asbestos, radon, sprays, cleaning agents, etc.
- Identify illnesses and symptoms associated with poor air quality.
- Review indoor air laws, guidelines and regulations.
- Identify methods to reduce indoor air pollutants.

**WILDLIFE- ENDANGERED PLANTS AND WILDLIFE**

1 hour

5 exam questions

- Explore the principle causes of species depletion and extinction, including the elimination of habitat, environmental toxins, natural causes and over-consumption.
- Study the history and impact of the Endangered Species Act. Explore ways to protect endangered plants and wildlife and the inter-relationships to all living things.

**INITIATING SCHOOL PROGRAMS**

1 hour

5 exam questions

- Review inclusion of environmental education in schools; initiatives by business, industry and conservation organizations.
- Explore options to provide supplemental, environmental-grade appropriate lessons/projects.
- Consider opportunities to become involved with environmental education programs.

**SUPPLEMENTAL SUBJECT**

1 hour

5 exam questions

- Select a topic from “Approved Supplemental Subjects” (page 36)

**MATERIAL SOURCES AND CITIZEN EDUCATION PROGRAMS**

- Explore sources of environmental information.
- Identify contacts at the local, state and federal level for information about how to report pollution.
- Provide website and hotline numbers; examples of working programs in adult environmental education sponsored by business, industry, government and conservation organizations such as the Environmental Protection Agency (EPA), National Wildlife Federation, Trout Unlimited, the National Audubon Society, Sierra Club, Ducks Unlimited, etc. Identify green/or sustainable technology, i.e. recovering oil from plastic containers.

**COURSE REVIEW AND WRAP-UP** - Proctor or Appointee by State ES Chairman**NATURE DISCOVERY FIELD TRIP**

2 hours minimum

- Visit a **natural** area emphasizing the study of air and related issues under the direction of trained environmental education facilitators.

**“A stewardship is a trust.**

**A steward is one called upon to exercise responsible  
care over possessions entrusted to him or her.**

**Stewardship involves a sense of being accountable  
to someone or something higher than self.”**

***Stephen R. Covey***

**NATIONAL GARDEN CLUBS, INC.**  
**ENVIRONMENTAL SCHOOL CURRICULUM**

**Course 4 – Water and Related Issues**  
**10 HOURS**

**ECOLOGY**

1 hour

5 exam questions

- Recognize water resources, surface water, groundwater the hydrologic cycle, including worldwide supply, distribution, renewal and management.
- Investigate the concerns pertaining to water resources, sustained ground water/aquifers.
- Identify the sources and the effects of water pollutants both natural and man-made.
- Discuss actions individuals, families, businesses, industries and governments can take to sustain a supply of useable water.

**PLANTS – AQUATIC PLANTS**

1 hour

5 exam questions

- Explore plants in aquatic ecosystems, including plant culture, beneficial and harmful plants, eutrophication and the effect of pollutants on aquatic vegetation.
- List the major advantages and disadvantages of aquaculture, and associated food production.

**WETLANDS**

1 hour

5 exam questions

- Explore the various types of inland and coastal wetlands, their qualities and functions.
- Discuss natural and human interactions affecting wetlands, such as agriculture, land development, mining pollution and wetland destruction.
- Review the important values of natural wetland ecosystems such as providing flood protection, erosion prevention, the recharge of groundwater supplies, improved groundwater quality, providing crucial habitat required to support plant and animal biodiversity, and what needs to be done to protect these valuable natural resources.

**ENVIRONMENTAL SCIENCE – SUSTAINABILITY**

1 hour

5 exam questions

- Explore the causes of the Global Water Crisis including drought, flood and climate change recognizing the "Crisis" is less about supply than it is recognizing water's true value, using it efficiently and planning for a different future.
- Review the practices a society must use to sustain biodiversity needed by society in agriculture and economics that will meet the demands of an ever-increasing and demanding human world population.
- Learn to live off the interest of the finite natural resource base and not the capital. Ensure that actions in all facets of daily life do not interfere with the natural cycles of the earth so that the earth's life support systems are maintained for all species.

**WILDLIFE – AQUATIC ANIMALS**

1 hour

5 exam questions

- Examine fresh water and salt water animals, their world distribution, life cycles and benefits to mankind.
- Review the life support ecosystems of aquatic animals, including the special functions of estuaries, coastal wetlands coral reefs and barrier islands.
- Take into account the impacts of over-harvesting, pollution, disruption of life cycles and habitat destruction on aquatic life.
- Explore actions that can be employed to protect aquatic animals.

**YOUTH PROGRAMS IN ENVIRONMENTAL EDUCATION** 1 hour 5 exam questions

- Investigate environmental awareness programs and materials designed for young people by National Audubon Society, National Wildlife Federation, camping associations, and/or other nonprofit agencies, governmental bodies, business and industry.
- When possible provide sample educational materials, and discuss the scope, goals and effectiveness of such programs.
- Review action programs, which have been initiated by young people to protect the earth.
- Highlight ways we may become involved with youth environmental education/action projects.

**SUPPLEMENTAL SUBJECT** 1 hour 5 exam questions

- Select a topic from “Approved Supplemental Subjects” (page 36)

**EARTH STEWARDSHIP – EFFECTIVE CITIZENSHIP** 1 hour 5 exam questions

- Explore opportunities that demonstrate leadership in the protection of earth systems and resources in the home, community, state and national levels through personal actions, consumerism and political involvement. Review meaningful steps we may take to protect the environment.

**COURSE REVIEW AND WRAP-UP** - Proctor or Appointee by State ES Chairman

**NATURE DISCOVERY FIELD TRIP** 2 hours

- Visit a **natural** area to emphasize the study of water and related issues under the direction of trained environmental education facilitators.

**“Think globally, Act locally  
Think locally, Act globally  
But most of all  
Feel and Act personally!”**

## Field Trips

A TWO-HOUR Nature Discovery field trip will be included in each course. A longer field trip may be built in at the chairman's discretion. The site of the trip should be related to some aspect of the subjects covered in that particular course. The trip is to be a study of a natural area directed by trained Environmental Education Facilitators. Opportunities for "hands on" student involvement should be provided whenever possible. Field trip experiences are NOT included in exams.

## Approved Field Trip Subjects

To be designed to increase our understanding and appreciation of the natural world:

- Animal discovery - a wild habitat study
- Ecology of a Natural Area - meadow, stream wetland, etc.
- Edible wild plant tour with samplings, if possible. Experts needed.
- Example of habitat enhancement for a specific life form
- History of the Land excursion, comparing then and now
- Investigating a zoo, aquarium or farm
- Land reclamation site
- Museum on air, volcanoes, thermal dynamics
- Nature center with hands-on involvement
- On-site study of trees, soil, wild plants, etc.
- Organic farm and investigating organic techniques
- Wildlife rehabilitation center

## Approved Supplemental Subjects

For a one-hour unit in Courses 2, 3 and 4

Alternatives to Toxins

Amazing Microbes

American Forests

Art in Nature

Beneficial Insects

Butterflies

Current Conservation Legislation

Developing School Outdoor Laboratories Sites

Edible Plants

Green Space Preservation

Health and Diseases of the Land, Air and Water

Historic Trails

How to Start a Conservancy

Life of (Any animal)

Life of (Any Plant)

Medicinal Herbs

Mushrooms of the World

Ocean Resource Preservation

Organic Gardening

Plants that Clean the Air

Pollution Resistant Plants

Preservation of Farm Lands Through Legislation

Preserving Plant Genetic Diversity

Rails to Trails

Rain Gardens

Study an Endangered Plant or Animal

Toxics in the Home

Value of Flood Plains

Value of Raptors

Water in the Home Landscape

Wild Wings

Wilderness Preservation

World in a Mud Puddle

World in Your Garden - Plant Origins

Additional field trips and supplemental subjects are possible with the prior approval of the NGC, Inc. ES Accrediting Chairman.

## Course Vocabulary

The following words are in the Glossary or referenced in the Index to increase your understanding of the subjects. We advise you to research the definitions in the Glossary and Index of *Living In The Environment*

### COURSE 1 VOCABULARY

biodiversity	ecology	geosphere
biomagnification	ecosystem	habitat
biome	Endangered Species Act	hydrologic cycle
biosphere	environment	producer
carrying capacity	environmental degradation	sustainability
consumer	Environmental Protection Agency	symbiotic relationship
decomposer	environmental science	synergistic interaction
ecological niche	food chain	tragedy of the commons

### COURSE 2 VOCABULARY

Agricultural Revolution	grasslands	soil conservation
barrier islands	green revolution	sustainable agricultural system
carrying capacity	integrated pest management	urban microclimate
coastal zone	nonrenewable resources	urban sprawl
composting/compost	rangelands	wetlands
deforestation	renewable resources	Wilderness Act of 1872
desertification	slash-and-burn cultivation	Wildlife Restoration Act of 1937
gene pool		

### COURSE 3 VOCABULARY

acid deposition	extractive reserves	primary (air) pollutant
Aldo Leopold	first law of ecology	rain forest
atmosphere	fossil fuel	Resource Conservation and Recovery Act
biocentric	global warming	Superfund Act
Clean Air Act	greenhouse effect	thermal (temperature) inversion
environmental ethics	oxygen cycle	threatened species
epiphytes	photochemical smog	weathering
extinction (biological)		

### COURSE 4 VOCABULARY

aquaculture	economic system	polychlorinated biphenyls (PCBs)
bacteria	estuary	riparian zones
Clean Water Act 1977	groundwater	surface water
commercial extinction	infiltration	Water Pollution Control Acts 1972, 1978
coral reefs	inland wetlands	watershed
cultural eutrophication	leaching	Wild and Scenic Rivers Act 1968
drainage basin	non-point source pollution	

## Required and Recommended Reading

### REQUIRED READING

- *The National Gardener*— 4 issues per year
- *Guide for Students and Consultants (Student Guide Revised 2019)* available on the NGC website and provided in student packets with course outlines.

### RECOMMENDED READING

- Darke, Rick and Tallamy, Douglas W., *The Living Landscape: Designing For Beauty And Biodiversity In The Home Garden*; Timber Press, (2014)
- Miller, Tyler G. Jr., *Living in the Environment: Principles, Connections and Solutions*; Books/Cole Publishing CO.
  - ◆ *Living in the Environment* is continuously revised. In the Environmental Schools, the basics of Environmental Science, Ecology and an understanding of how earth processes work, is taught. Recommended readings, as future editions are published, will be available from NGC, Inc., ES Chairman and/or Accrediting Chairman.
- Tallamy, Douglas W., *Bringing Nature Home; How You Can Sustain Wildlife with Native Plants. Updated and Expanded*; Timber Press, (2009) for Course 1
- Tallamy, Douglas W., *Nature's Best Hope: A New Approach to Conservation That Starts in Your Yard*; Timber Press (2019) for Course 1

The above books are the official recommended texts for these courses. They are available, new and/or used, from many websites.

The following is the recommended reading for the Environmental Schools:

#### Seventh Edition

Course 1 – Introduction	Chapters 1, 2, 4, 5, 16, 20
Course 2 – Land	Chapters 9, 12, 14, 15, 19, 23
Course 3 – Air	Chapters 6,10,11,21, 25, 26
Course 4 – Water	Chapters 3, 13, 17, 18, 22, 24

#### Eighth Edition

Course 1 – Introduction	Chapters 1, 2, 4, 5, 16, 20
Course 2 – Land	Chapters 9, 12, 14, 15, 19, 21, 24
Course 3 – Air	Chapters 3, 13, 17, 18, 23, 25
Course 4 – Water	Chapters 3, 13, 17, 18, 23, 25

#### Tenth Edition

Course 1 – Introduction	Chapters 1, 2, 5, 6, 13, 25
Course 2 – Land	Chapters 7, 9, 20, 21, 22, 23
Course 3 – Air	Chapters 12, 14, 15, 16, 17, 28
Course 4 – Water	Chapters 8, 10, 11, 18, 19, 26, 27

#### Eleventh Edition

Course 1 – Introduction	Chapters 1, 4, 6, 7, 9, 23, 24
Course 2 – Land	Chapters 7, 8, 12, 14, 15, 22, 26
Course 3 – Air	Chapters 15, 16, 18, 19, 24, 26, 29
Course 4 – Water	Chapters 8, 10, 11, 13, 17, 20, 27, 28

## RECOMMENDED READING (Cont.)

### Twelfth Edition

Course 1 – Introduction	Chapters 1, 2, 4, 6, 9, 11, 16, 20, 22, 26, 27, 28
Course 2 – Land	Chapters 1, 6, 20, 21, 22, 23, 25, 26, 27, 28
Course 3 – Air	Chapters 1, 6, 15, 17, 18, 22, 26, 27, 28
Course 4 - Water	Chapters 1, 4, 7, 13, 15, 19, 20, 24, 26, 27, 28 Appendixes 5 & 6 for all Courses

### Thirteenth Edition

Course 1 – Introduction	Chapters 1, 2, 4, 5, 6, 7, 8, 9, 12, 21, 22, 23
Course 2 – Land	Chapters 10, 13, 15, 17, 20, 21, 23, 25
Course 3 – Air	Chapters 6, 17, 18, 22, 27, 28
Course 4 – Water	Chapters 1, 4, 7, 14, 19, 24, Appendixes 1, 2, 3 and Glossary

### Fourteenth Edition

Course 1 - Introduction	Chapters 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 18, 19, 20, 21, 22, 23, 24, 26, 27
Course 2 – Land	Chapters 1, 2, 5, 6, 7, 11, 13, 14, 15, 16, 21, 22, 23, 25, 27
Course 3 – Air	Chapters 1, 2, 4, 5, 6, 8, 11, 12, 13, 14, 15, 17, 18, 20, 21, 22, 24, 25, 26, 27, 28
Course 4 – Water	Chapters 1, 4, 7, 8, 14, 15, 19, 22, 26, 27, Appendixes 2 & 5, Glossary, CD-ROM

### Fifteenth Edition

Course 1 – Introduction	Chapters 1, 2, 3, 4, 8, 10, 11, 12, 13, 14, 17, 18, 21
Course 2 – Land	Chapters 1, 5, 6, 8, 10, 13, 15, 20, 21, 22, 23, 24, 25
Course 3 – Air	Chapters 1, 2, 3, 4, 5, 7, 11, 15, 19, 20, 22, 25, 26
Course 4 – Water	Chapters 1, 6, 12, 14, 21, Supplement 5, Supplements 4 & 5; Glossary

### Sixteenth Edition

Course 1 – Introduction	Chapters 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 15, 16, 17, 22, 24, 25, Plus Supplements 3, 4, 5, 9, 10, 11, 12
Course 2 – Land	Chapters 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15, 16, 21, 25, Plus Supplements 3, 4
Course 3 – Air	Chapters 1, 3, 4, 7, 9, 12, 17, 18, 19, 21, 24, 25, Plus Supplements 3, 4, 8, 9, 10, 11, 12
Course 4 – Water	Chapters 1, 3, 4, 6, 7, 8, 9, 11, 13, 20, 22, 23, 24, 25, Plus Supplements 3, 4, 7, 8, 9, 11, 12 Glossary

### Seventeenth Edition

Course 1 – Introduction	Chapters 1, 5, 6, 9, 10, 21, 22, 25, Plus Supplements 3, 6, & Glossary
Course 2 – Land	Chapters 1, 8, 12, 14, 21, 23, 24
Course 3 – Air	Chapters 1, 18, 19, 23, 24, Plus Supplement 7 & Glossary
Course 4 – Water	Chapters 1, 8, 11, 13, 24 & Glossary

### Nineteenth Edition

Course 1 – Introduction	Chapters 1, 3, 4, 5, 6, 9, 10, 11, 14, 15, 23, 24
Course 2 – Land	Chapters 3, 4, 5, 8, 9, 10, 11, 12, 20, 21
Course 3 – Air	Chapters 4, 7, 9, 18, 21, 23, 24, 25
Course 4 – Water	Chapters 8, 11, 13, 20, 22, 23, 24

## Supplemental Reading List

### ENVIRONMENTAL SCHOOL - SUPPLEMENTAL READING LIST

#### Books

- Caldicott, Helen, *If You Love This Planet*, (2009)
- Carson, Rachel, *Sense of Wonder*, (To introduce children to nature) (1990)
- Carson, Rachel, *Silent Spring*, (1962)
- Christian, David, *Maps of Time an Introduction to Big History*
- Gore, Al, *Earth, In the Balance*, (1992)
- Hay, John, *In Defense of Nature*, (2007)
- Herman, Marina Lachecki; Passineau, Joseph F.; Schimpf, Ann L.; Treuer, Paul, *Teaching Kids to Love the Earth*, (1990)
- Leopold, Aldo, *A Sand County Almanac and Sketches Here and There*, (1990)
- Louv, Richard. *Last Child in the Woods*, (2005 & 2008)
- McKibben, Bill, *Earth Making a Life on a Tough New Planet*, (2010)
- McKibben, Bill, *End of Nature*, (2005)
- McKibben, Bill, *Enough: Staying Human in an Engineered Age*, (2003)
- McNeill, J.R., Norton, W.W. *Something New Under the Sun: An Environmental History of the Twentieth Century*, (2001)
- Nash, Roderick, *Wilderness and the American Mind*, (2001)
- Ross Russell, Helen, *Ten-Minute Field Trips*, (1998)
- Seuss, Dr., *The Lorax*, (1978)
- Shabecoff, A., *Fierce Green Fire: The American Environmental Movement*, (2003)
- Shutkin, William A., *The Land That Could Be: Environmentalism and Democracy in the Twenty-First Century*, (2001)
- Stem, Kutner, Adams, *Precious Heritage “The Status of Biodiversity in the United States”*, (2000)
- Wilson, E. O., *The Diversity of Life*, (1992 & 2000)
- Wondolleck and Yaffee, *Making Collaboration Work*, (2000)

#### Periodicals — Free with your membership in these organizations

- Audubon*
- Amicus Journal, Environmental Defense Fund*
- Clean Ocean Action*
- Nature Conservancy*

#### Internet/Websites

- Department of Natural Resources – Wisconsin <http://www.dnr.state.wi.us/>
- EcoEarth.Info; Environment Portal & Search Engine <http://www.ecoearth.info/>
- Ecology <http://www.ecology.com/>
- EEK! – Environmental Education for Kids <http://www.dnr.state.wi.us/eeek/>
- Endangered Animals <http://www.kidsplanet.org/factsheets/map.html>
- Endangered Species <http://www.endangeredspecies.com/>

Environment and Nature in the Yahoo! Directory

[www.dir.yahoo.com/Society and Culture/Environment and Nature/](http://www.dir.yahoo.com/Society_and_Culture/Environment_and_Nature/)

Environment Web Directory [www.webdirectory.com/](http://www.webdirectory.com/)

Environmental Protection Agency- Clean Water Act <http://www.epa.gov/r5water/>

EPA Environmental Kids Club: Home Page [www.epa.gov/kids/](http://www.epa.gov/kids/)

Invasive Species <http://www.invasivespecies.gov>

Land Use <http://landuse.org/>

National Wildlife Federation [www.nwf.org](http://www.nwf.org)

Nature Net [www.naturenet.com](http://www.naturenet.com)

Sierra Club <https://www.sierraclub.org/>

Threatened and Endangered Plants

[http://www.ncrs.fs.fed.us/gla/tesweb/plants/Plants Main.htm](http://www.ncrs.fs.fed.us/gla/tesweb/plants/Plants_Main.htm)

U.S. Environmental Protection Agency <http://www.epa.gov/>

Water Resources of the United States <http://water.usgs.gov/>

USGS National Wetlands Research Center <http://www.nwrc.usgs.gov/>

Wisconsin Center for Environmental Education College of Natural Resources, UW - Stevens Point

<http://www.uwsp.edu/cnr/wcee/>

## **OTHER RESOURCES**

YouTube

Videos

Natural Science Museums

Public Radio Nature Presentations

NOAA Resources

## Section 9 – Gardening Schools

### Purpose, Objectives & Course Requirements

#### 1. Purpose and Scope of Schools

NGC Gardening Schools were established in May 1977. Four courses were designed to learn the correct way to plant, to prune and marvel at what we have accomplished. We are stewards of the land; we have a responsibility to serve and protect for future generations. This is in keeping with NGC Bylaws Article II, Number 5: “to study and to advance the fine arts of gardening, landscaping, floral design and horticulture.”

#### 2. Objectives of the Gardening Schools

- a. Stimulate interest in the growth of plant materials to their peak of perfection.
- b. Give the student an understanding of how and why a plant grows.
- c. Teach soil structure and methods for making the soil more productive.
- d. Provide an understanding of plants’ reactions to certain weather conditions and how to modify these conditions to encourage optimum growth.
- e. Provide an understanding of commercial and natural fungicides and pesticides, growth regulators and other chemicals used in general horticultural procedures.
- f. Illustrate methods for rapid propagation.
- g. Offer plant identification instruction.
- h. Explore growing techniques for garden plants, vegetables, fruits, houseplants, trees, shrubs and specialized styles of gardening.
- i. Develop a respect for and appreciation of plants and their roles in our lives and activities.

#### 3. Course Requirements

- a. Each of the four courses consists of ten hours of lectures, which may include field trips to evaluate and receive instruction on specific course topics.
- b. Attendance is mandatory at all lectures and field trips.
- c. **Recommended textbook is *Botany for Gardeners*, Brian Capon, Timber Press.**
- d. The student/prospective consultant must take and pass each exam to receive credit.
- e. **Open book/notes for all exam questions**
- f. **Each multiple choice exam question is valued at 2.5 points for Course 1 and valued at 2 points for Courses 2, 3, & 4.**

**CURRICULUM GUIDE FOR NGC GARDENING SCHOOLS  
REVISED JULY 2018**

**Course 1 - Botany, Soils, Outdoor Flowers, Plant Propagation  
10 HOURS**

<b>A. Basic Botany</b>	<b>2.5 Hours</b>	<b>15 Questions</b>
<ul style="list-style-type: none"> <li>● Plant anatomy (roots, stems, leaves, flowers)</li> <li>● Plant requirements (light, temperature, water, humidity)</li> <li>● Life cycle of plants (annuals, biennials, perennials)</li> <li>● Reproduction (sexual, asexual - pollination and fertilization)</li> <li>● Study of plant structure (specific plant group studied - use of hand lens or other visual aids)</li> </ul>		
<b>B. Soils</b>	<b>2.0 Hours</b>	<b>10 Questions</b>
<ul style="list-style-type: none"> <li>● Characteristics and structure of soil</li> <li>● Soil testing (Extension Service/state)</li> <li>● Function of soil</li> <li>● Importance of roots</li> <li>● Maintenance</li> <li>● Fertilization (compost, fertilizers)</li> </ul>		
<b>C. Techniques for Growing Outdoor Flowers</b>	<b>1.5 Hours</b>	<b>8 Questions</b>
<ul style="list-style-type: none"> <li>● Environmental factors and choice of plant material               <ul style="list-style-type: none"> <li>◆ Weather, climate</li> <li>◆ Soil temperature</li> <li>◆ Cultivar selection -- Locally based important</li> </ul> </li> <li>● Organic gardening</li> <li>● Crop rotation and landscape suitability</li> <li>● Pruning and training of plants</li> <li>● Problems and problem solving</li> </ul>		
<b>D. Plant Propagation</b>	<b>1.5 Hours</b>	<b>7 Questions</b>
<ul style="list-style-type: none"> <li>● Seed selection               <ul style="list-style-type: none"> <li>◆ Organic, non-GMO, non-organic</li> <li>◆ Seed storage and germination</li> <li>◆ Seedling success and transplanting</li> </ul> </li> <li>● Vegetative propagation               <ul style="list-style-type: none"> <li>◆ Bulbs, roots, corms, tubers, rhizomes</li> <li>◆ Layering</li> <li>◆ Stem and leaf cuttings</li> <li>◆ Grafting</li> <li>◆ Tissue Culture</li> </ul> </li> <li>● <b>Propagation workshop (hands on project) workshop</b> <b>1.5 hours</b></li> </ul>		
<b>E. Supplemental Subject</b>	<b>See Handbook page 48</b>	<b>1.0 Hour</b>

Each exam question is valued at 2.5 points. .

# CURRICULUM GUIDE FOR NGC GARDENING SCHOOLS

## Course 2 - Diseases & Pests, Irrigation & Water, Lawns & Alternatives, Fruits & Vegetables 10 HOURS

- A. Plant Diseases and Garden Pests** **2.5 Hours** **15 Questions**
- Site/Visit - farm, CSA, garden center, nursery, botanic garden, university extension
  - Overview of good growing techniques (**Controls** - organic and inorganic)
  - Regional insect and disease problems
    - ◆ Seasonal
    - ◆ New insect/disease problems (add prohibited and invasive species in area)
  - Beneficial insects - predators
  - Problem solving/prevention
    - ◆ Sanitation
    - ◆ Interplanting
    - ◆ Mulching
  - Examples of plant problems - disease and insects **Note:** Students bring in examples
- B. Irrigation and Water** **1.5 Hours** **8 Questions**
- Planting efficiently
  - Water use and water saving factors
    - ◆ How much water is necessary?
    - ◆ Water problems - regional
      - Water bans
      - Water quality
- C. Lawn Alternatives and Growing Grass** **1.5 Hours** **8 Questions**
- Site preparation and selection of grass/plants
  - Maintenance of site
  - Problem solving
- D. Growing Fruit** **1.5 Hours** **8 Questions**
- Choice of varieties
  - When and how to plant
  - Training and pruning
  - Environmental factors
  - Problem solving and solutions
- E. Growing Vegetables** **2.0 Hours** **11 Questions**
- Choice of varieties (organic, non-GMO, non-organic)
  - When and how to plant
  - Crop rotation and inter-planting
  - Pest control
  - Problems and solutions
- F. Supplemental Subject** See Handbook page 48 **1.0 Hour**

Each exam question is valued at 2.0 points.

# CURRICULUM GUIDE FOR NGC GARDENING SCHOOLS

## Course 3 - Plant Growth, New Plant Development, Containers, Houseplants, Native Trees & Shrubs, Teaching Tour 10 HOURS

- A. Factors That Influence Plant Growth** **2.0 Hours** **11 Questions**
- Environmental factors
    - ◆ Local, regional conditions
    - ◆ Light, water, and temperature
    - ◆ Weather - Seasonal, drought, flood
    - ◆ Pollution problems
  - Nutrients - organic, inorganic
  - Plant/cultivar choices
- B. New Plant Development and Evaluation** **1.5 Hours** **9 Questions**
- Hybridization or genetic manipulation
  - Species/Cultivar selection - Include Native Plants and Nativars
    - ◆ Commercial operation – seed company
    - ◆ Plant specialist - (i.e., plant society hybridizers)
  - Environmental suitability – the importance of linking plant selection with plants that support biodiversity
  - Test gardens
- C. Container Gardening – Outdoor** **1.5 Hours** **8 Questions**
- Plants suitable for containers
  - General culture
    - ◆ Environmental, temperature, light, humidity
    - ◆ Annuals, perennials, vines, etc.
  - Types of containers
    - ◆ Size, weight, and adaptability – include factors such as heat intensity on root development
    - ◆ Single container, combination plantings, dish gardens, planters, and troughs
- D. Houseplant Basics** **1.0 Hours** **6 Questions**
- Growing conditions indoors
  - Plant choices
  - Training and pruning
  - Types of indoor containers (Single container, combination plantings, dish gardens, terrariums)
- E. Native Trees and Shrubs** **1.0 Hours** **6 Questions**
- Plant Species/Varieties - Being mindful of planting zones, soil moisture, sun exposure and salt exposure for coastal areas
  - Local, regional choices - Right Plant, Right Place
  - Wildlife support - Native species (usually more trees than shrubs and wildflowers alone) are the foundation of biodiversity
  - Proper planting and maintenance (covered in depth in other GS Courses)
  - Maintenance - Pruning and the relationship between trees and turf grass

**F. Teaching Tour**

**2.0 Hours**

**10 Questions**

- Indoor and outdoor plants
- Annuals, perennials, trees and shrubs (including natives), container plants, wildflowers, etc.

**G. Supplemental Subject** See Handbook page 48

**1.0 Hour**

Each exam question is valued at 2.0 points. ~

# CURRICULUM GUIDE FOR NGC GARDENING SCHOOLS

## Course 4 - Classification, Garden Styles, Plant Identification, Pruning, Woody Ornamentals

10 HOURS

**Suggested Location:** University or extension service, botanic garden

<b>A. Plant Classification and Nomenclature</b>	<b>1.0 Hour</b>	<b>7 Questions</b>
<ul style="list-style-type: none"><li>• Overview of all studied plants</li><li>• Binomial nomenclature - naming system Note: Keep it simple</li><li>• Important flowering/foilage plant groups</li></ul>		
<b>B. Outdoor Identification of Plants</b>	<b>3.0 Hours</b>	<b>15 Questions</b>
<ul style="list-style-type: none"><li>• Plant families<ul style="list-style-type: none"><li>◆ Characteristics</li><li>◆ Local/regional choices</li></ul></li><li>• Key/glossary and identification of plants (hand lens required)</li></ul>		
<b>C. Specialized Styles of Gardening</b>	<b>2.0 Hours</b>	<b>10 Questions</b>
<ul style="list-style-type: none"><li>• Sun/Shade gardening</li><li>• Greenhouse</li><li>• Organic</li><li>• Rock gardens/alpine gardens</li><li>• Hot beds and cold frames</li><li>• Hydroponics and aquaponics</li><li>• Other styles</li></ul>		
<b>D. Techniques for Growing Woody Ornamentals</b>	<b>1.5 Hours</b>	<b>9 Questions</b>
<ul style="list-style-type: none"><li>• Plant selection and environmental factors</li><li>• When and how to plant</li><li>• Training and pruning</li><li>• Specific problems and solutions</li></ul>		
<b>E. Pruning Techniques</b>	<b>1.5 Hours</b>	<b>9 Questions</b>
<ul style="list-style-type: none"><li>• Overview of proper equipment/tools/training</li><li>• Trees and shrubs</li><li>• Perennials and annuals</li><li>• Any other - specific plant group</li><li>• Demonstration<ul style="list-style-type: none"><li>◆ Inside and outside</li><li>◆ Participation by students</li></ul></li></ul>		
<b>F. Supplemental Subject See Handbook page 48</b>	<b>1.0 Hour</b>	

Each exam question is valued at 2.0 points. .

## Recommended & Required Reading

### Required Reading

- *The National Gardener* – 4 issues per year
- Guide for Students and Consultants (Student Guide Revised 2/2019) available on NGC website and provided in student packets with course outlines.

### Recommended Reading

- Capon, Brian, *Botany for Gardeners*. Timber Press
- Tallamy, Douglas W., *Nature's Best Hope: A New Approach to Conservation That Starts in Your Yard*. Timber Press (2019)
- Stell, Elizabeth, *Secrets to Great Soil (Storey's Gardening Skills Illustrated)*
- YouTube video [Secrets to Great Soil](#)
- *The New Western Garden Book: The Ultimate Gardening Guide, Ninth Edition* (Sunset Western Garden Book)

In addition to the above, it is recommended that literature appropriate to the gardening region in which each Course is held be used as references. This list may be sent to all registrants with their study packet (outlines) prior to the Course date. The NGC GS Chairman may give permission for substitution of any book that is more appropriate for local specifics, upon request of the State GS Chairman

### Approved Supplemental Subjects

The State GSS Chairman may suggest other subjects for approval by the Accrediting Chairman. Local interests will be considered.

- Any plant-related subject approved by the NGC Accrediting Chairman.
- Gardening for Wildlife/Habitat – resources include National Pollinator Garden Network, The Million Pollinator Garden Challenge and National Wildlife Federation (see NGC website: The Million Pollinator Garden Challenge)
- Heirlooms (vegetables and flowers)
- Invasive Plants
- Reconciliation Ecology (see article in the fall 2015 issue of *The National Gardener*) Power Point presentations available on NGC website, Gardening School page
- Vermiculture/Vermicomposting
- Various additional specialized styles of gardening not included in Course 4

## Section 10 – Landscape Design Schools

### Purpose, Scope & Objectives

#### Purpose and Course Requirements

On October 7, 1958, NGC established a series of four courses on landscape design in order to develop a greater appreciation of the environment, both natural and manmade, in its membership. This is in keeping with NGC Bylaws Article II, Number 5: “to study and to advance the fine arts of gardening, landscape, floral design and horticulture.”

#### Objectives of the Landscape Design Schools

- Develop a greater sense of appreciation, pride and knowledge about our private, public and historical gardens.
- Become better informed in order to promote positive changes in our surroundings to encourage beauty, utility, convenience, sound ecological practice and ease of maintenance.
- Encourage a better understanding of the landscape design process to promote landscapes that will sustain sound management.
- Stimulate interest in all phases of landscape design, including community planning.
- Develop a contingent of qualified Landscape Design Consultants to serve in such decision-making areas of public life as providing leadership, educational programs, scholarships, awards and promoting better landscape design.

### Course Requirements

#### Content

Each of the four courses consists of ten hours of lectures, which may include visits to evaluate sites. Attendance is mandatory at all lectures of a course for the student to take the exam and receive credit. Prospective consultants take a written examination. Each course includes:

- Ten hours of lectures, including a supplemental subject lecture.
- Required reading from Landscape Design articles in *The National Gardener*
- A multiple-choice examination (open book/open note) based on the lectures and required reading (the number of questions and their point value are stated in the curriculum). Exams are optional, but must be taken by those who want to be certified as Landscape Design Consultants.
- In Course 4, *A Brief History of Urban Garden Programs in the United States* by Laura Lawson is required reading, available at: <http://agriurban.rutgers.edu/WhatisUrbanAg.html> Go to the site, "The Office of Agriculture and Urban Programs" appears, and under Presentations at the bottom of the site is the Power point for *A Brief History of Urban Garden Programs in the United States*.

## **Curriculum Review**

In order to be responsive to the needs and interests of the membership, this curriculum is reviewed regularly and may be updated by the NGC LDS Committee on the basis of reports of Course Evaluations (Form 11-2020) received from State LDS Chairman.

## **Curriculum for Schools Begun July 1, 2019 and after (approved at 2018 NGC Fall Board Meeting)**

- We will include a segment in each course aimed specifically at redesigning a home landscape. Many of our students live in suburban homes with existing landscapes. They want to make modest changes that do not require the services of a professional designer. This will not encroach upon professional services and if more extensive design work is involved, it will allow the student to better communicate and understand the process.
- We will emphasize the goals of NGC that relate to landscape design. Fundamentally, we need to be aware of the environmental burdens the typical suburban landscape places on the national level. Even moderate changes in planting choices and cultural practices can make significant impacts on the ecosystems around us.

## **Instructor Requirements**

Anyone certified or educated in the Landscape area (Landscape Architect, Landscape Designer- note that not all Landscape Designers are certified) may teach any topic. Writers/lectures in appropriate fields of the program and specialists in a particular topic, such as botanists and horticulturists, may serve as instructors. Appropriate areas of instructor expertise for each course topic are indicated following the name of the topic. Supplemental Subjects/Special Interest Topics are approved on an individual basis – see page 62. If in doubt, contact the LDS Instructors Chairman.

# CURRICULUM GUIDE FOR NGC LANDSCAPE DESIGN SCHOOLS

**Course 1 – Your Ecosystem; Space, Design & People; Principles & Elements of LD; Developing Your Garden Plan; Basics of Site Plan; Color in the Landscape; Design for the Environment; Development of LD - Ancient Times to 1840; Xeriscaping**

**10 HOURS**

- Topics A - I: 9 topics, 5 questions each, 2 points each, total 90 points.
- Reading Selection from NGC Reading Exam Chairman: 5 questions, 2 points each, total 10 points

## **A. Learning about Your Ecosystem (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Ecologist, Biologist, Botanist, Environmentalist, Horticulturist**

- Our neighborhoods are environments. Our environments include all life, from bacteria, fungus and viruses to the tallest trees. Environmental conditions include topography, geology (soils especially), climate and man-made structures and alterations to the environment for exploitation (agriculture, mining, landfill for building, altered river courses, etc.) It is vital to learn about our natural ecosystems before trying to create landscapes that are artificial ecosystems.
- From a purely practical standpoint, creating a hostile landscape will be extremely costly in terms of manpower and inputs (chemical and hardscape), as well as damage to the prevailing ecosystem. From an ethical standpoint, creating a landscape that supports wildlife is a requirement.

## **B. Space, Design and People (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, City Planner**

- Spatial structure
- Mass and void
- Three space-defining components: earth: topography, plants, structures
- Spatial progression/sequence
- Spatial involvement by people

## **C. Principles and Elements of Landscape Design (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Design theory
- Approach to design
- Evolution of a design (design process)
- Organization of space for use and beauty
  - ◆ Art elements as building blocks for design principles
  - ◆ Design principles: balance, contrast, dominance, proportion, rhythm, scale
  - ◆ Design elements: color, form, light, line, pattern, shape, size, space, texture

## **D. Developing Your Garden Plan (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Basic steps in planning a landscape
  - ◆ Plot plan
  - ◆ Spatial use design, aka bubble diagram
  - ◆ Easements
  - ◆ Utility lines
  - ◆ Topographical features

- ◆ Drainage
- ◆ Paving
- Structures
- Plantings
- Determine environmental conditions
- Determine views: enhanced or hidden, screen undesirable views
- Current and future family needs (list priorities)
- Define short-term and long-term goals

#### **E. Basics of a Site Plan (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Methods of simple site measurements
- Common design/construction documents
- Mechanics of delineation simplified
- Symbols of landscape plans
- Computer-aided design (CAD)
- Currently available amateur design software: advantages and pitfalls

#### **F. Color in the Landscape (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Horticulturist, Lecturer/Writer of Landscape-related Topics, Garden Specialist, Artist**

- Color perception in landscape design
- The color wheel and seasonal color
- Colors and emotional responses
- Color variations in plants, including foliage, flowers, fruits, seeds, bark
- Incorporating hardscape with plantings to tell a color story
- Design unity through color harmony

#### **G. Design for the Environment (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Landscape Ecologist, Horticulturist, Environmentalist**

- Identifying your ecosystem
- Plant ecology: native plants, invasive plants
- Designing with sound site-planning practices
- Designing for pollinators
  - ◆ Native plants as host plants are vital
  - ◆ Creating wildlife corridors
- Indigenous materials
- Energy conservation, especially seasonal
- Sound water management: xeriscaping, rain gardens, water harvesting
- Maintenance reduction
- Cost-effective design
- Implementation practices

## **H. Development of Landscape Design: Ancient Times to 1840 (1 hour)**

**Instructor: Landscape Architect, Historian, Lecturer/Writer of Landscape-related Topics**

- Landscape design as influenced by environmental and societal factors
- Mesopotamian design
- Egyptian design
- Medieval enclosures
- Islamic influence
- Renaissance order
- English Landscape design 1600-1840

## **I. Xeriscaping: Not Just for the Desert (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Horticulturist, Plant and Soil Scientist/Specialist**

- Water-wise gardening
- Well-considered landscape design
- Appropriate drought-tolerant plants, right plant in the right place
- Reduction or elimination of turf
  - ◆ Rainwater capture and/or efficient irrigation
  - ◆ Soil analysis and amendments
  - ◆ Mulches (including organic, inorganic and living)
  - ◆ Maintenance

## **J. Supplemental Subject (1 hour) See Handbook pages 62 - 64**

## CURRICULUM GUIDE FOR NGC LANDSCAPE DESIGN SCHOOLS

**Course 2 – LD Process; Designing for Pollinators & Wildlife; Plants in the Landscape; Accessible, Enabling & Therapeutic Gardens; Structures in the Landscape; Redesign of Areas; Development of North American LD; Preservation of Historic Sites & Structures; Overused, Often Invasive Plants & Native Alternatives**

### **10 HOURS**

- Topics A - I: 9 topics, 5 questions each, 2 points each, total 90 points
- Reading Selection from NGC Reading Chairman: 5 questions, 2 points each, total 10 points

### **A. Landscape Design Process 1 (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

1. Program: understanding or creating a program

- Goals of the design
- Uses/purposes of the space
- Special considerations, e.g. dining area, screening, agricultural, environmental, entertaining, security
- Budget
- Style/theme
- Lighting
- Drainage – topography, grading, water flow

2. Site Analysis: understanding the site's opportunities and constraints

- Reading the existing terrain
  - ◆ Sun/shade, seasons, time of day
  - ◆ Drainage/irrigation
  - ◆ Hardiness and Heat Zones
  - ◆ Soil characteristics
  - ◆ Interpreting the site's natural scale
- Understanding the site's history
- Wetland buffers, urban/wildland buffers
- Local/state regulations including zoning restrictions, environmental regulations, regulatory agencies

3. Concept Plan: creating a broad-stroke plan for the design

- Designating main nodes/gathering areas
- Creating connections/circulation
- Creating a hierarchy within nodes and circulation
- Organizing the spaces
- Utilizing existing topography, designing with the land

### **B. Designing for Pollinators and Wildlife (1 hour)**

**Instructor: Landscape Architect, Environmentalist, Horticulturist, Ecologist, Wildlife Biologist**

- Importance of interrelationships of living organisms
- Layers in wild landscapes
- Layers in home gardens
- Ecological functions/dysfunctions of gardens
- Plants appropriate to your area
- Creating/registering a wildlife habitat

### **C. Plants in the Landscape (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Horticulturist, Lecturer/Writer of Landscape-related topics**

- Functional role of plants in the landscape: climate considerations/mitigations, architecture, sound, erosion, circulation control
- Microclimates
- Design principles and elements
- Development of a planting plan
- Softscape/hardscape definition
- Horticultural characteristics
- Climatic tolerance
- Soil conditions
- Environmental factors
- Growth
- Habit
- Longevity
- Disease and pest tolerance
- Role in the garden ecosystem

### **CI. Accessible, Enabling and Therapeutic Gardens (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Environmentalist, Horticultural Therapist**

- Universal design
- The five senses
- Raised beds
- Container gardening
- Vertical gardening
- Appropriate tools
- Plant selection

### **CII. Structures in the Landscape (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Hardscape's functions
- Water/water features
- Steps, walls, fences, enclosures
- Methods of construction
- Design implementation
- Short vs. long-term economics of choices: maintenance, life-expectancy
- Post-construction review and evaluation

### **CIII. Redesign of Areas (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Reasons for redesign:
  - ◆ Damaged materials/upgrade materials
  - ◆ Desire to change use, theme, style
  - ◆ Overgrown plantings
  - ◆ Changes in lifestyle, social patterns and neighborhood
- Maintenance capabilities

- Safety and security measures
- Home garden/residential scale
- Examples of public and private redesign

#### **G. Development of North American Landscape Design (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Historian, Lecturer/Writer of Landscape-related Topics**

- Native American shaping of the landscape
- Colonial social, economic and political influences: Spanish, Dutch, English, French
- Early colonial gardens: food and medicine
- Gardens of the Eighteenth and Nineteenth Century: “use and delight”
- Twentieth century: the age of the lawn (the anti-garden)
- Influential designers including: L’Enfant, Downing, Olmsted, Jensen, Farrand, Eckbo, Kiley, Rose and Church

#### **H. Preservation of Historic Sites and Structures (1 hour)**

**Instructor: Landscape Architect, Historian, Preservation Specialist**

- Role of historic heritage as communicated by sites and structures
- Historic preservation provides a tangible culture memory and environmental diversity
- Degrees of preservation
  - ◆ Preservation
  - ◆ Restoration
  - ◆ Adaptive reuse/rehabilitation
  - ◆ Reconstruction
- Historical designations and how to achieve official status
  - ◆ National Register of Historic Places
  - ◆ National Trust for Historic Preservation
  - ◆ Historic American Landscapes Survey (HALS)
  - ◆ The Cultural Landscape Foundation (TCLF)
  - ◆ Defining historically significant segments of a site
  - ◆ Maintenance of historical integrity
- Preserving natural and built landscapes from these standpoints
  - ◆ Culture
  - ◆ Economics
  - ◆ History
  - ◆ Aesthetics
- Case study

#### **I. Overused, Often Invasive Plants and Native Alternatives in Your Area (1 hour)**

**Instructor: Landscape Architect, Horticulturist, Environmentalist, Botanist, Ecologist, Biologist**

- Definition of invasive/exotic plants
- How exotic invasives create dead zones in the landscape
- Definition of native plants
- How native plants create a food web as they feed the insects that feed the birds etc.
- *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants* by Doug Tallamy
- Nativars dispute
- Local resources for information about exotic invasives

- Local resources for learning about native plants
- Local sources for purchasing native plants

**J. Supplemental Subject (1 hour)** See Handbook pages 62 - 64

## CURRICULUM GUIDE FOR NGC LANDSCAPE DESIGN SCHOOLS

### Course 3 – LD Process; Woody Plants in the Landscape; Herbaceous Materials in the Landscape; LD with Maintenance in Mind; Graphics Interpretation; Creating Your Own Home Garden Landscaping Plan

#### 10 HOURS

- Topics A - E: 5 topics, 6 questions each, 2 points each, total 60 points
- Topic F: Landscape plan: 30 points. Points given only if Landscape Plan created by student.
- Reading Selection from NGC Reading Chairman: 5 questions, 2 points each, total 10 points.

#### A. Landscape Design Process 2 (2 hours)

**Instructor: Landscape Architect, Landscape Designer**

- Design Development
- Defining shapes
- Dimensioning spaces
- Shaping the land, developing surface drainage and grading
- Incorporating design elements, features and details
- Construction material choices
- Planning ahead for future expansion or changes (conduit sleeves, irrigation, lighting, audio)
- Construction Documents, Planting, Lighting and Final Touches
- After developing the site layout, the planting and lighting should reflect and complement the spaces
- Appropriate lighting, safety
- Dark Sky Movement
- Creating a lighting design that guides you through the space in the desired directions
- Creating a planting design that highlights key features and complements the design style
- Planting design highlighting seasonal interest throughout the year

#### B. Woody Plants in the Landscape (1 hour)

**Instructor: Landscape Architect, Landscape Designer, Horticulturist, Lecturer/Writer of Landscape-related topics, Garden Specialist**

- Woody plants are the backbone of the landscape.
- Tree and/or shrub (pruning options)
- Deciduous and evergreen plants and their role in the landscape
- How large will it be when mature? Plant tag information may not apply to all areas.
- Siting correctly to prevent foundation, walkway and roof damage
- Creating a pleasing rhythm with woody plants
- Recommended woody plants for the area, consider the specific garden locale and/or microclimate
- Siting, planting and maintenance – right plant in the right place

#### C. Herbaceous Materials in the Landscape (1 hour)

**Instructor: Landscape Architect, Landscape Designer, Horticulturist, Lecturer/Writer of Landscape-related topics**

- Seasonal displays
- Color schemes
- Succession of blooms
- Planting, maintenance, dividing
- Appropriate native plants for the area

) **Landscape Design with Maintenance in Mind (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- How design limitations, structural characteristics and plant selection affect maintenance
- Requirements for hardscape and softscape elements in the landscape
- Maintenance budget and personnel
- Resource-efficient development
- Plan ahead, especially for public landscapes

- **Graphics Interpretation (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Architectural materials
- Reading a landscape plan
- Understanding engineer scale vs. architectural scale
- Elementary plans and evaluations
- Liaisons: designers, horticultural consultants, civic committees, planning agencies
- Common design documents
  - ◆ Bubble plans
  - ◆ Concept/presentation drawings
  - ◆ Construction detail drawings and specifications
  - ◆ Final “as built” plans

**F. Creating Your Own Home Garden Landscaping Plan (3 hours)**

**Instructor: Landscape Architect, Landscape Designer**

**Note:** Within Course 3, Topic F is scheduled after Topics A and E have taken place

- Each student will bring an accurately measured drawing of a small area of their landscape (or a design plan for the landscape of a friend or family member) that they would like to redesign or be given an alternate plan and fact scenario in class
- If their own plan, they will create a list of their requirements, restrictions and the conditions of the site. (One hour of introduction and instruction)
- The Instructor will work with them to create a workable design. (One hour to work on design)
- Ideas for this project would include an herb garden, a cutting garden or a garden dedicated to a specific genus (Iris, Hosta, Roses, Daylilies, etc.) **as part of an integrated landscape design plan**
- The instructor will examine the plans and make suggestions as needed. (One hour of evaluation)
- Master Landscape Design Consultants may serve as instructor's aides

**G Supplemental Subject (1 hour)** See Handbook pages 61 - 63

## CURRICULUM GUIDE FOR NGC LANDSCAPE DESIGN SCHOOLS

### Course 4 – Contemporary LD Trends; Community Participation in Landscaping Projects; History and Development of Community Gardens; Suburban Design; Guidelines for Evaluating Landscape Designs; Evaluation of Landscape Designs

#### 10 HOURS

- Topics A - E: 5 topics, 5 questions each, 2 points each, total 50 points
- Topic F: Student must participate in tours/complete NGC Form LDS 14 for each, total 40 points. At least two sites, one private and one public, must be visited. A Landscape Architect or Landscape Designer should accompany the group. Each site should include discussion on principles and elements of good design along with how they have or have not been met.
- Reading selection from NGC Reading Chairman: 5 questions, 2 points each, total 10 points

#### A. Contemporary Landscape Design Trends (1 hour)

**Instructor: Landscape Architect, Landscape Designer**

- The Modern Movement (1930s-40s)
- Integration of landscape design and structures (especially residential)
- Contemporary uses of softscape and hardscape materials
- Conservation of non-renewable materials
- Native plants
- Latest trends
- Influential designers including: Halprin, Smith, Olin, Walker

#### B. Community Participation in Landscaping Projects (1 hour)

**Instructor: Landscape Architect, Landscape Designer, City Planner, Zoning Specialist**

- How to initiate a civic project
- Suitable projects for community groups
- Crucial considerations: maintenance and funding
- Possible problems:
  - ◆ Overambitious project - start small
  - ◆ Lack of maintenance commitment
  - ◆ Vandalism
- Requirements for professional inputs in major projects
- Case study

#### C. History and Development of Community Gardens (1 hour)

**Instructor: Historian, Anyone Involved in Creating a Community Garden, Lecturer/Writer of the Topic**

- Benefits
- Evolution of the community garden from the 1890s to the present
- Permanent resources in food deserts
- Creating community and connection with the land
- Developing a community garden
  - ◆ Land tenure
  - ◆ Expense, utilities, security and regulations
  - ◆ Community outreach
  - ◆ Engaging a wider network of support

**D. Suburban Design (1 hour)**

**Instructor: Landscape Architect, Landscape Designer, Zoning Specialist, City Planner**

- The domination of suburbs and their landscaping
- How a lawn and foundation plantings affect wildlife
- Balancing the maintenance load with the desire to garden responsibly
- Suburban restrictions and local government restrictions and variances
- Alternatives to lawn

**E. Guidelines for Evaluating Landscape Designs of Residential, Public and Commercial Property (1 hour)**

**Instructor: Landscape Architect, Landscape Designer**

- Introduce the NGC LDS Landscape Evaluation form and explain its use

**F. Evaluations of Landscape Designs (4 hour lecture/tour)**

**Instructor: Landscape Architect, Landscape Designer**

- Students need an NGC LDS Landscape Evaluation form for each site. Form LDS 14 is available on the LDS page of the NGC website. Students need pencils, erasers and clip boards as they walk through the entire property.

**G. Supplemental Subject (1 hour) See Handbook pages 62 - 64**

## Required & Recommended Reading

### Required Reading

- *The National Gardener (TNG)*. Students and Consultants are encouraged to read every Landscape Design article in *TNG*. A copy of the article from which their exam questions will be taken will be provided with their course outlines. The article and exam are sent to the State LDS Chairmen by the NGC Reading Exam Chairman upon course approval.
- “A Brief History of Urban Garden Programs in the United States,” by Laura Lawson is the reference for Course 4’s *History and Development of Community Gardens*.
- The *Guide for Students and Consultants* (Student Guide Revised 2/2019) available on the NGC website and provided in student packets with course outlines.

### Recommended Reading

The Recommended Reading list may be found on the LDS page of the NGC website.

- Alaimo, Marilyn editor, *Stewards of the Land: A Survey of Landscape Architecture and Design in America*, NGC, (1999)
- Alexander, Rosemary, *The Essential Garden Design Workbook*, Timber Press, (2017)
- Chisholm, Linda, *The History of Landscape Design in 100 Garden*, Timber Press, (2018)
- Coronado, Shawna, *The Wellness Garden*, Cool Springs Press, MN, (2017)
- Darke, Rick and Tallamy, Douglas W., *The Living Landscape: Designing for Beauty and Biodiversity in the Home Garden*, Timber Press, (2016)
- Reed, Sue & Stibolt, Ginny, *Climate Wise Landscaping*, New Society Publishing, Gabriola Island, BC, (2018)
- Schwartz, Bobbie, *Garden Renovation*, Timber Press. (2017)
- Tallamy, Douglas W., *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants, Updated and Expanded*, Timber Press (2009)
- Tallamy, Douglas W., *Nature’s Best Hope: A New Approach to Conservation That Starts in Your Yard*, Timber Press, (2019)
- *Newscape*, the NGC LDS digital newsletter is published twice yearly. It is posted on the LDS page of the NGC website

### Approved Supplemental Subjects

Each LDS Course includes a Supplemental Subject (formerly known as Special Interest Topics) enabling State LDS Chairmen to explore new trends, issues and regional concerns. Supplemental subjects/special interest topics are **not** tested.

The following topics (many of these were formerly listed in Suggested Special Interest Topics - LDS 20) are automatically accepted. The NGC LDS Instructors' Chairman must approve other subjects along with the Supplemental Subject Instructor’s credentials.

For each Course, use a Supplemental Subject that is not covered in the required course curriculum for the course.

- Arboretum, Botanical Garden and Educational Garden Design
- Art and Nature Appreciation
- Art in the Landscape: Installation, Site-Specific Art, Earth Art, Nature Art, Sculpture, Living Plant Art
- Beautify Blight/Landscape Revitalization
- Bird and Butterfly Gardens

- Cemetery Landscape History and Restoration
- Children’s Outdoor Environments
- Civic Horticulture
- City Beautification
- Climate Change and Resilience
- Community Gardens: The Vertical Farm
- Community Landscape Design Issues: Challenges & Solutions
- Community Landscape Management
- Conservation of Natural Resources
- Cottage Garden Design
- Cultural and Ethnographic Landscapes
- Design on the Land - Regional Expression
- Designs for the Future
- Development of Landscape Architecture
- Diversity, Equity, and Inclusion
- Drylands Design
- Ecology and Environment
- Ecology and Restoration
- Edible Landscape
- Environmental Justice
- Feng Shui Garden Design
- Garden Design Exhibits (Flower Show and other exhibits)
- Garden Design for Seasonal Effects
- Gardens for Children
- Gardens for Physically Challenged – Universal Design
- Green Infrastructure and Transportation
- Groundcovers in the Landscape and their Functional Application
- Hardscape and Enclosures in Garden Design
- Health and the Landscape
- Health Benefits of Nature
- Healthcare and Therapeutic Design
- Healthy and Livable Communities
- Herb Garden Design
- Historic Preservation: Social and Economic Values
- Historic Districts/Local History
- Indoor/Interior Garden Design
- Land Use Planning
- Landscape as Classrooms
- Landscapes at Risk
- Landscapes as a Learning Experience
- Landscape Design Accessories
- Landscape Design Resources
- Landscaping for Local Recreational Trends
- Landscape with Native Trees (to help the environment)
- Landscaping for Wildlife
- Local Land Trust Development & Management

- Lost Landscapes
- Memorial Gardens
- Mini-Workshop: Color in the Landscape
- New Urbanism
- Outdoor Lighting
- Outdoor Rooms
- Pedestrian versus Vehicular Landscape Design: Hardscape and Plants (Potentials/Compatibilities)
- Permaculture and Sustainable Agriculture
- Plant Visitations: Focus on Native Plant Resources, Plant Trends, Plant Combinations
- Planting Design
- Preserving Public and Private Open Spaces
- Prominent Professionals in Landscape Design
- Public Landscapes
- Rain Gardens
- Regenerative Landscape and the Climate Crisis
- Regional Landscape Design
- Residential Design
- Role of Native Plants in Landscape Design
- Roof Gardens and Garden Walls (Vertical Gardens)
- Sensory Gardens
- Significant Historic Landscape Sites
- Site Design for Energy Conservation
- Site Specific Landscapes: Shade, Full Sun, Moist, Dry, Flat, Rolling, Natural Obstacles
- Spotlight on Local Landscapes
- Sustainable Design and Development
- Sustainable Landscape: Self-sustaining Landscapes
- The Great American Outdoors Act
- The Sustainable Site Initiative (SITES)
- The Works of Renowned Landscape Leader(s)
- Theme or Period Garden Design
- Therapy Gardens
- Thinking a Lot More about the "Parking Lot"
- Townhouse and Patio Gardens/Container and Wall Gardens
- Tree Canopy in the Landscape: Their Functional Element in Design
- Universal Design
- Urban Design
- Water Conservation
- Water Garden Design
- Water Management in the Landscape
- Wildlife Reserves Help to Preserve
- Women in Landscape Architecture
- Working Landscapes/Ocean, River & Lake Waterfronts/Roads, Highways, Turnpikes & Railroads

**Standard for Evaluating Landscape Designs**

This form, specific to the LDS program, was developed and implemented prior to this current Handbook. It is required for use in Course 4 and remains available for download on the LDS page of the NGC website.

LDS 14

**National Garden Clubs, Inc.  
Landscape Design Schools**

**STANDARD FOR EVALUATING LANDSCAPE DESIGN**

	<u>Value</u>	<u>Score</u>
I. <b>First Impression (5%)</b>	5	_____
II. <b>Suitability of Design to Purpose (5%)</b>	5	_____
III <b>Design (45%)</b>		
A. <b>Functional Aspect</b>		
1. <b>Suitability</b>	5	_____
2. <b>Creation and utilization of space</b> (Including circulation patterns, activities, rest area, etc.)	15	_____
B. <b>Aesthetic Aspect</b>		
1. <b>Design principles employed successfully</b> (balance, contrast, dominance, proportion, scale, rhythm)	10	_____
2. <b>Design elements applied successfully</b> (line, form, color, texture, pattern, size, space and light)	10	_____
3. <b>Originality and distinction</b> (Including unusual qualities, features, accents, and enhancements. Successful solution of site problems.)	5	_____
IV <b>Implementation (30%)</b>		
A. <b>Materials and Structures</b>		
1. <b>Suitability to purpose, site and design</b>	15	_____
2. <b>Perfection of details</b>	5	_____
B. <b>Plant Materials</b>	10	_____
V <b>Maintenance (10%)</b>		
A. <b>Incorporation of maintenance awareness into     design and selection of materials</b>	5	_____
B. <b>Current, sustained maintenance</b>	5	_____
VI <b>Final Impression (5%)</b>	5	_____
<b>Total: 100 %</b>		_____

8/11/12

## Section 11 – Consultants’ Councils

Consultants’ Council is a State Organization composed of members who are NGC, Inc. Consultants, Master Consultants, Provisionals or Emeritus. A Council Chairman or President may be appointed by the State President or may be elected within the Council.

### Establishing a Council

1. State garden clubs may establish councils to provide activities and additional educational opportunities for Consultants. Historically these were separate Councils for Environmental, Gardening and Landscape Design Consultants. The more recent trend is to have Bi- or Tri- Councils providing combined activities for Consultants from two or three schools (it is common for those who become Consultants in one school to become Consultants in one or both of the other schools). Bi- or Tri-Councils may exist either as a single entity or as a group coordinating the activities of two or three specific councils.
  - A Council may be formed in each state as soon as there are a sufficient number to make it viable, perhaps ten, who are certified as Consultants. More than one Council may be established in a state, according to geographic need. Those planning to form a Council may contact the NGC Consultants Council Chairman for guidance. *The State Garden Club may sponsor the Council, in which case the Council must comply with the financial guidelines required by that organization and the IRS.*
  - Councils generally develop bylaws. They may be led by officers elected by the council or appointed by the State President.

### Council Purpose

2. Council purpose
  - Sponsor school courses and refreshers
  - To stimulate interest in the Council’s subject matter
  - Encourage its State Garden Club to sponsor NGC School courses and refreshers
  - Provide assistance to its State Schools Chairman
  - Encourage NGC members to attend NGC Schools
  - To encourage all Consultants to continue their education in the area of interest with special programs and speakers and interchange of ideas
  - Encourage Consultants to refresh
  - Recognize good environmental, gardening and landscape design practices so that members may be better qualified to serve as guardians of land use and outdoor beauty.
  - Stimulate public interest through example and recognition in phases of community planning
  - Encourage further study and activity through conducting workshops, seminars or tours
  - Support of NGC and State objectives
  - To assist garden clubs and other organizations in Council-related activities
  - To network with other groups

### **Council Support Should Include**

3. The Council's support *should* include the following
  - Assistance with NGC School courses and refreshers
  - Promotion of attendance at courses and refreshers
  - Preparation of educational exhibits for flower shows, garden club meetings, National Garden Week, etc

### **Council Support May Include**

4. The Council's support may include, but is not limited to, the following
  - Awards for outstanding environmental, gardening and landscape projects
  - Financial support for office equipment and supplies for the State Schools Chairmen
  - Financial support for speakers on environmental, gardening and landscape design issues at State Garden Club meetings
  - Scholarships for students attending NGC Schools courses and refreshers

### **Advantages of Council Membership**

5. Advantages of Council membership
  - Attend programs presented by professionals.
  - Tour public and private gardens
  - Attend workshops to study environmental, gardening and landscape design focused subjects.
  - Evaluate landscape designs and gardens.

### **Service to Garden Club**

6. Service to Garden Clubs by Council members
  - Present environmental, gardening and landscape design programs
  - Judge gardening and landscape design contests
  - Assist with civic projects
  - Provide assistance with award applications
  - Promotion of awards by each Council should encourage applications for State Garden Club and NGC awards
  - Consult the NGC Consultants Council Chairman for the types of awards offered by other Councils

### **Community Service**

7. Community Service by Council Members
  - Judge civic beautification contests
  - Liaise between civic leaders and the public on matters relating to environmental, gardening and landscape design issues
  - Serve on civic boards for parks, planning, etc.

### **To Establish A Consultants' Council**

8. To Establish a Consultants' Council
  - Gain approval of State Garden Club President and Board
  - Contact Council Chairman for direction
  - Elect officers
  - Develop Bylaws

## Consultants' Council Sample Bylaws

### ARTICLE I. NAME

Section 1. This organization shall be known as the \_\_\_\_\_ Consultants' Council of \_\_\_\_\_ .

### ARTICLE II. PURPOSE

Section 1. To continue education in \_\_\_\_\_ in order to improve and maintain a highly qualified leadership.

Section 2. To assist with \_\_\_\_\_ Schools in this state.

Section 3. To encourage the organization of local councils so they can provide continuing study in the state.

### ARTICLE III. MEMBERSHIP

Section 1. To be eligible for membership one must be a member of a club Federated with NGC, Inc. and have received a Consultant's Certificate or must have passed two of the four courses making them a Provisional Consultant.

Section 2. To retain membership, an accredited \_\_\_\_\_ consultant must remain in Good Standing with NGC, Inc. and pay annual dues to the state council.

Section 3. To retain membership, student members must continue with required academic course(s).

Section 4. Accredited and student members from neighboring states may become associate members by applying to the president and presenting evidence of Good Standing with NGC, Inc. and paying annual dues.

Section 5. All members shall have voting privileges but only state members are eligible to hold office.

### ARTICLE IV. OFFICERS AND ELECTIONS

Section 1. Officers shall be President, Vice-President, Secretary and Treasurer.

Section 2. The election of officers shall take place at the annual meeting in uneven years.

Section 3. In even years, a nominating committee of three shall be appointed by the executive committee. Vacancies in office may be filled by the president with the approval of the executive committee.

Section 4. In the election year, a slate of officers shall be presented by the nominating Committee. Nominations from the floor will be in order. Election will be by ballot and a majority vote shall elect.

Section 5. Officers shall serve one two-year term except the treasurer, who may serve two consecutive terms.

### ARTICLE V. DUTIES OF OFFICERS

Section 1. The president shall preside at all meetings of the \_\_\_\_\_ Council.

a. The president shall appoint standing and special committees and shall be an ex-officio member of all committees, except the nominating committee.

b. A vacancy occurring in an office shall be filled by the president with the approval of the executive committee.

c. The president shall endorse the expenditures of the organization.

d. The president shall assist the vice-president in planning the programs.

e. At the annual meeting, the president shall present a report concerning the year's activities.

- Section 2. The vice-president shall serve as an aide to the president.
- a. In the absence of the president, the vice president shall take over the duties of the president.
  - b. The vice-president shall serve as the program chairman.
- Section 3. The secretary shall keep the minutes of the meeting in permanent form and shall be custodian of all records relating to the Council.
- a. The secretary shall give a report at each meeting.
  - b. The secretary shall keep an accurate record of members with mailing addresses.
  - c. The secretary shall keep a record of attendance of members.
  - d. The secretary shall conduct all correspondence as is delegated by the president.
- Section 4. The treasurer shall collect all monies.
- a. The treasurer shall give a financial report at each meeting.
  - b. The treasurer's books shall be audited at the close of her/his term of office by the executive committee.

#### **ARTICLE VI. EXECUTIVE COMMITTEE**

- Section 1. The executive committee shall be composed of the president, vice-president, secretary and treasurer.
- Section 2. The executive committee shall define all the policies of the council.
- Section 3. The executive committee shall be empowered to expend funds for meetings and programs.

#### **ARTICLE VII. FISCAL YEAR AND FINANCES**

- Section 1. The fiscal year of the council shall be from June 1 through May 31.
- Section 2. Annual dues shall be \_\_\_\_\_
- Section 3. Dues shall be payable at the annual meeting and shall be received by the treasurer no later than June 1.
- Section 4. Notice shall be given to members whose dues are in arrears. If not paid by July 1, their name(s) shall be dropped from the rolls.

#### **ARTICLE VIII. MEETINGS**

- Section 1. Regular meetings shall be held (date) at (time).
- Section 2. An annual meeting shall be held concurrent with the annual meeting of (state).
- Section 3. Special meetings may be called at the direction of the president.
- Section 4. One-fourth of active members of the council shall constitute a quorum.

#### **ARTICLE IX. AMENDMENTS**

- Section 1. These bylaws may be amended at an annual meeting by a two-thirds vote of active members present, providing members are notified in writing of the proposed amendment at least two weeks prior to the meeting.
- Section 2. Without previous notice, these bylaws may be amended at an annual meeting by unanimous vote.

#### **ARTICLE X. PARLIAMENTARY AUTHORITY**

The rules contained in the current edition of *Robert's Rules of Order, (Newly Revised)* shall govern in all cases to which they are applicable and in which they are not inconsistent with these bylaws and any special rules of order the council may adopt.

**ARTICLE XI. DISSOLUTION**

In the event of dissolution, any remaining assets shall be distributed to organizations, organized and operated exclusively for charitable, educational or scientific purposes which shall at the time qualify as exempt organizations under Section 501(C)(3) of the Internal Revenue Code of 1954.

Adopted (Date) Revised (Date)