



## Build a Green Roof

### Summary

Students learn about the types of projects that landscape architects work on and then create their own green roof using a shoebox.

- Students are introduced to the landscape architecture profession and learn that green roofs are one type of project that landscape architects create.
- Students build a mini green roof in the lid of a shoebox.
- Discussion before and after the building process, along with a handout, highlights the benefits of green roofs.

This activity could be done in various settings including a classroom, scout troop, community event, or after-school program.

This Career Discovery activity can also be implemented in different ways depending on the time available and the audience's age. See the appendix for other implementation possibilities.

### Publicize and Document Your Activity

By taking the time to create and implement a NLAM Career Discovery activity, you achieve two great results—you promote the profession while teaching students about sustainability, ecological issues, and the technical aspects of landscape architecture.

Be sure to publicize your activity within your community and document it to share your experience with other ASLA chapters. Refer to the appendix for suggestions on publicizing and documenting your activity.

**Grade Level:** K–6

### Duration

50 minutes

### Personnel

- Teacher, if done in classroom setting
- Landscape architect

### Costs

- Photocopies (handouts)
- Landscape architect volunteer time
- Building materials

### Learning Objectives

Students will:

- Learn about landscape architecture as a career.
- Discover the environmental benefits of a green roof.



## Materials

### SUPPLIES

- Paper to cover tables
- Glue sticks or liquid glue
- Craft materials (foam shapes, buttons, pipe cleaners, construction paper, tissue paper, etc.)
- Markers
- Masking tape
- Scissors
- Shoe boxes (one per student)
- Aluminum foil sheets (sized to line each shoe box lid)
- Potting soil with fertilizer (enough to fill each shoe box lid)
- Forks (10 or so)
- Paper cups (10 or so) filled with  $\frac{1}{4}$ " of grass seed
- Extra grass seed (to refill cups as needed)
- Trowels for scooping potting soil
- Plastic bags (to transport potting soil and grass seed if green roof will be assembled at home)
- Hand washing supplies: water, soap, towels

### EQUIPMENT

- Sink, water, soap, towels
- Broom and dust pan
- Cloths (to wipe tables)
- Tables and chairs (number depends on your audience)
- Computer and projector (if using the ASLA PowerPoint presentation)

### SESSION HANDOUTS (SEE APPENDIX)

- *How to Build a Green Roof*
- *Landscape Architecture FAQs*

## Preparation Checklist

At least one month in advance:

- Contact a school, scout troop, or other organization that might be interested in hosting a presentation about landscape architecture.
- Meet with the adult supervisor (principal, teacher, scout master, or parent) to discuss the activity outline.
- Review the national academic standards for this activity with the adult supervisor, if applicable (see appendix).

One week prior:

- Touch base with the teacher or adult supervisor to reconfirm the date, time, and meeting place.
- Gather images of different types of landscape architecture projects to show the students.
- Decide which one of your projects is most appropriate to share with the students and gather pertinent materials to show them.
- Make copies of materials you plan to distribute during your presentation (handout, ASLA Career Discovery brochure, etc.).



## Procedure

### ADVANCE PREPARATION

- Set up the work table(s) and cover with paper (tape paper to table).
- Place chairs at around half of the work tables.
- On the work tables, set out the glue, markers, scissors, tape, and aluminum foil.
- Set out cups with grass seed and forks on the materials table.
- Set out shoeboxes and lids, and potting soil near the materials table.

### WHAT TO DO

#### INTRODUCTION TO THE PROFESSION AND GREEN ROOFS TIME: 15 MIN

1. Introduce yourself and tell students you are a landscape architect. Explain what landscape architects do.
2. Tell students they will be making a green roof similar to those that landscape architects create on some real building roofs.
3. Provide information about green roofs.
  - Consider showing pictures of actual green roofs, especially ones that are local.
  - Ask students:
    - What do you know about green roofs?
    - What questions do you have about green roofs?
  - Briefly review the environmental benefits of green roofs.
    - Manage stormwater; cool cities (reduce urban heat island effect); clean the air; build habitat

#### LEAD THE GREEN ROOF ACTIVITY TIME: 25 MIN

4. Distribute the *How to Build a Green Roof* handout with the instructions for building the shoebox green roof.
  - Review the instructions and be sure students understand what they will be doing. Ask if there are any questions.
  - Make sure students know where to put their green roofs if they are leaving them in a classroom.
  - Remind students to write their name on their box.



## Build a Green Roof

5. Circulate among the students while they are building their green roofs and answer any questions.
6. Refill paper cups with grass seed as needed. Check other supplies and restock as needed.

### WRAP UP

TIME: 10 MIN

7. Remind students to:
  - Wash their hands when they finish the project because the soil contains fertilizer.
  - Water their green roofs when they get home (if they are not leaving them in the classroom).
8. Ask students:
  - Do you have any questions about what landscape architects do?
  - What did you learn about green roofs today?
9. Distribute the *Landscape Architecture FAQs* handout if you have a grade 5–6 audience.
  - Review the education and licensing that are required to become a landscape architect.
  - Point out the ASLA web address.



## Appendix

|   |   |
|---|---|
| Publicize and Document Your Activity .....      | 6 |
| Alternative Ways to Implement the Activity..... | 7 |
| National Academic Standards .....               | 9 |

### **HANDOUTS**

*How to Build a Green Roof*

*Landscape Architecture FAQs*



## Publicize and Document Your Activity

Don't let the effort you put into creating and implementing a Career Discovery activity go unnoticed!

Staff at ASLA National is always on hand to help promote your events to local media; feel free to contact them at anytime. If you would like to reach out to local media yourself, below are some tips to assure your name appears in print or online.

### **PUBLICIZE**

For tips on reaching out to local media refer to the Member Public Relations Reference. You'll find tips like these:

- Pitching the story to the media
- Formatting the press release
- Appealing to the audience
- Making the story relevant

### **TAKE PICTURES & VIDEO**

Be sure to take lots and lots pictures and video! ASLA National has completely revamped our Chapter Activity section and we look forward to featuring your event online.

Send us photos or video of your event featuring:

- Students interacting with professionals
- Your presentation materials
- The activity in process
- The end result of your activity

### **DOCUMENT**

The edits we have made to our Chapter Activity Form will make it easier to record and report on the activity or activities that your chapter completes.



## Alternative Ways to Implement the Activity

This Green Roof activity can be implemented in different ways depending on the time available and the audience's age.

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### A FOCUS ON LANDSCAPE ARCHITECTURE

Audience: Grades 6–8

Estimated time: 1 ½ hours

#### GOAL

Provide a more in-depth introduction to landscape architecture.

#### RESOURCES

Use the ASLA PowerPoint presentation.

Access the presentation via this link:

[www.asla.org/nonmembers/recruitment/brochures.htm](http://www.asla.org/nonmembers/recruitment/brochures.htm)

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### A FOCUS ON GREEN ROOFS

Audience: Grades 6–9

Estimated time: About 2 hours

#### GOAL

With more time and an internet connection, provide more in-depth information about green roofs and their environmental benefits.

#### RESOURCES

- Use portions of the ASLA Green Roof Education program to discuss the environmental benefits of green roofs. Access the program via this link: [www.asla.org/greenroofeducation/](http://www.asla.org/greenroofeducation/)
- Show the 360-degree tour of the green roof on ASLA headquarters.
- Show one of the slide shows in “Explore the Benefits of a Green Roof.” Select one that is most pertinent to your location and use it as a vehicle to discuss how landscape architecture benefits the community.

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### BUILD A GREEN ROOF CITY

Focus the activity on the environmental benefits green roofs bring to cities.

The benefits include: reducing the urban heat island effect, helping to manage storm water runoff, cleaning the air, and building habitat. Refer to the ASLA Green Roof Education Program for more information. Access the program via this link:

[www.asla.org/greenroofeducation/](http://www.asla.org/greenroofeducation/)



## Build a Green Roof

Consider these possibilities:

- Present the activity within the context of this scenario: The city's mayor or city council has challenged (or mandated) organizations and business to "go green." Part of this initiative is that a certain percentage of the buildings will have green roofs.
- If an internet connection is available, use portions of the ASLA Green Roof Education program to present and discuss the environmental benefits of green roofs. Access the program via this link:  
[www.asla.org/greenroofeducation/](http://www.asla.org/greenroofeducation/)
- Have students, individually or in pairs, build a shoebox green roof (assigning each a civic building such as city hall, a fire or police station, a library or a museum, or a school).
- Have the students link their individual shoebox buildings together.
- Lead a discussion about the environmental issues in your community and show how various landscape architecture projects are helping to address these issues.

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### DESIGN/BUILD A GREEN ROOF

A larger and longer-term activity would be to work with students on designing and possibly building a green roof.

Consider these possibilities:

- In an initial session, introduce the profession of landscape architecture and focus in on green roofs.
- The teacher then uses the ASLA Green Roof Education Program to teach about green roofs.  
[www.asla.org/greenroofeducation/](http://www.asla.org/greenroofeducation/)
- The chapter then facilitates the designing and/or building of a green roof at the school or on a nearby community building using the basic design/build process provided in the ASLA Career Discovery Activity "Outdoor Reading Garden."



## National Academic Standards

The ASLA Career Discovery Program Activities correlate to the national standards created by the Mid-Continent Research for Education and Learning (McREL). McREL is a nationally recognized, private, nonprofit organization dedicated to improving education.

Academic standards are the skills and knowledge base expected of students for a particular subject area at a particular grade level. In the U.S. standards are not “standardized.” There are published sets of national and state standards, and some cities and local communities have created their own. Local academic standards can be matched to the McREL national standards.

### **ART**

Standard 1. Understands connections among the various art forms and other disciplines

### **GEOGRAPHY**

Standard 14. Understands how human actions modify the physical environment

# How to Build a Green Roof

A green roof replaces traditional roofing with a lightweight, living system of soil, compost, and plants. It creates a thin, green skin atop a building that gives a little something back to the world.

The plants—and the dirt and gravel that hold them—filter rainwater and some of its pollutants and they produce oxygen that helps clean the air. A green roof reduces a building's heating and cooling costs, acting as a form of insulation. They also lessen the heat island effect, which happens when buildings warm up so much that they heat the area surrounding them.

## How to Assemble Your Green Roof

1. Choose a box and lid from the supply table.
2. Move to a work table and securely tape the upside down lid to the bottom of the box.
3. Line the inside of the box lid with aluminum foil. Glue the foil in place to create a tight fit.
4. Decorate the outside of the box and lid to create a building: house; apartment building; grocery store; fire/police station; community center; church; etc.
5. Bring the decorated box to the supply table for potting soil. Spread the soil evenly on top of the aluminum foil. For easier transporting, potting soil and grass seed can also be placed in plastic bags so participants can finish them at home.
6. Sprinkle grass seed from one cup onto roof soil. Use a fork as a hoe to evenly distribute the seeds in the soil.
7. Wash your hands when you are finished with the project. The soil contains fertilizer.

## How to Care for Your Green Roof

- Once you bring your green roof home, place it in a bright window so it can soak up plenty of sunlight.
- Sprinkle 1/2–3/4 cup of water over your roof when you get home and then every few days or when the soil is dry. Remember, your roof is made of cardboard, so be careful not to add too much water.
- Within two to three weeks your grass should germinate (sprout). You may want to trim your grass with scissors if it gets too long.
- With good care, your green roof should continue to grow.
- Enjoy!

Adapted from instructions provided courtesy of the National Building Museum

# Landscape Architecture FAQs

Landscape architecture is a profession committed to creating healthy, enjoyable, and secure places for the future. Landscape architecture combines art and science. It is the profession that designs, plans, and manages our land.

Landscape architecture has strong roots in the United States and early examples, such as Thomas Jefferson's Monticello, are still much admired. The actual term landscape architecture became common after 1863 when Frederick Law Olmsted and Calvert Vaux designed New York's Central Park.

## **WHAT DOES A LANDSCAPE ARCHITECT DO ON THE JOB?**

Landscape architects deal with the increasingly complex relationships between the built and natural environments. Landscape architects plan and design traditional places such as parks, residential developments, campuses, gardens, cemeteries, commercial centers, resorts, transportation facilities, corporate and institutional centers, and waterfront developments. They also design and plan the restoration of natural places disturbed by humans such as wetlands, stream corridors, mined areas, and forested land. Their appreciation for historic landscapes and cultural resources enables landscape architects to undertake preservation planning projects for national, regional, and local historic sites and areas.

## **WHAT SKILLS DOES A LANDSCAPE ARCHITECT NEED?**

- Sensitivity to landscape quality
- Understanding of the arts and a humanistic approach to design
- Ability to analyze problems in terms of design and physical form
- Technical competence to translate a design into a built work
- Skills in all aspects of professional practice including management and professional ethics

## **WHAT ARE THE EDUCATION AND LICENSING REQUIREMENTS?**

A formal education is essential to gain the skills and knowledge to become a landscape architect. Professional education in landscape architecture can be obtained at the undergraduate or graduate level. There are two undergraduate professional degrees. These usually require four or five years of study in design, construction techniques, art, history, natural, and social sciences. There are generally three types of graduate degree programs. For more information visit the ASLA website. [www.asla.org/nonmembers/recruitment/edcareer.htm](http://www.asla.org/nonmembers/recruitment/edcareer.htm)

At present, 49 states license (or register) landscape architects. Each state sets its own requirements for registration, but all require candidates to pass a national examination (the Landscape Architect Registration Examination, or LARE).

## **WHERE DO LANDSCAPE ARCHITECTS FIND JOBS AFTER GRADUATION?**

Landscape architects are employed in private, public, and academic organizations. Private sector opportunities are found within landscape architectural, engineering, architectural, and planning firms. Landscape architects may also work with other types of private corporations that have physical planning departments, or offer products and services related to land planning and development. Public sector employment opportunities are found within federal, state, regional, and municipal agencies involved in land planning, development, and preservation. Landscape architects in academic practice teach and conduct research in the professional programs offered by colleges and universities across the country.

## **WHAT IS A LANDSCAPE ARCHITECT'S SALARY?**

Landscape architectural salaries vary depending on the years of experience, geographical location, and type of position. In 2007, the average salary for entry-level landscape architects was \$41,500, while in 2006 that of experienced practitioners was \$89,700.

For more information about a career in landscape architecture, visit the ASLA's website. [www.asla.org/nonmembers/recruitment/recruitment.html](http://www.asla.org/nonmembers/recruitment/recruitment.html)