

WELCOME TO THE



# Nature Exchange





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## About the *Nature Exchange*™

*Nature Exchange*™ is a unique, proprietary concept founded by Science North on the belief that we learn best from our day-to-day activities. Exploring the world outside our doors, picking up and handling real things, and engaging in conversation with meaningful people in our lives – these are fundamental in forming the framework for much of our understanding and respect for the natural world.

The *Nature Exchange*™ encourages people of all ages to appreciate nature and to learn about the biological and physical components of our environment, through observation, background research and responsible collecting.

*Nature Exchange*™ is an educational experience designed to encourage us to appreciate the

natural world by challenging people to learn about the biological and physical components of our environment. By harnessing our innate powers of observation, driving curiosity and fascination with collecting and trading with one another, *Nature Exchange*™ inspires excitement for self-motivated learning. This motivation is a strong driver for membership sales and repeat visitation. Data suggests that over 55% of members are active traders at the *Nature Exchange*™ experience.



*“You are the sum of all your discoveries.  
They shape you, change you, enable  
you to grow and see your world anew.”  
—Herman, Passineau, et al.,  
Teaching Kids to Love the Earth, 1991*



## The Thinking Behind *Nature Exchange*™

### The Goal

Harness the power of children’s innate curiosity and individual learning styles to build enduring relationships with the natural world.

### The Objectives

- Build a sense of wonder through focused activities
- Instill a love of learning through active mentoring
- Foster pride-in-accomplishment through age-appropriate challenges
- Create a feeling of community through knowledge sharing and discussion

### *Nature Exchange*™ cultivates enthusiasm for nature

*Nature Exchange*™ is a unique concept founded on the belief that we learn best from our day-to-day activities. Exploring the world outside our doors, picking up and handling real things, and engaging in conversation with meaningful people in our lives – these are fundamental in forming the framework for much of our understanding and respect for the natural world.

### *Nature Exchange*™ inspires self-motivated learning

*Nature Exchange*™ is an educational experience designed to encourage us to appreciate the natural world by challenging people to learn about the biological and physical components of our environment. By harnessing our innate powers of observation, driving curiosity and fascination with collecting and trading with one another, *Nature Exchange*™ inspires excitement for self-motivated learning.

### *Nature Exchange*™ teaches the value of knowledge

*Nature Exchange*™ is a forum where visitors can trade natural objects and swap stories with trained staff — without using money. The process teaches the ethics of responsible collecting and observing, helping traders understand that the inherent value lies not with the item itself, but with the experience of gaining and sharing knowledge about the world around us.



## Corporate Experience

Science North is Canada's second largest science centre and a globally recognized leader in the development of educational and entertaining exhibits and interactive multimedia programs.

Science North is a multi-attraction destination that includes four floors of permanent exhibits, a special exhibits hall, multimedia theatres, a live butterfly gallery, a giant screen 3D IMAX® theatre and a digital dome planetarium. Science North also owns and operates Dynamic Earth: Home of the Big Nickel, a separate, stand-alone attraction focused on geology, earth sciences and mining, which is Canada's eighth largest science centre.

For over 35 years, Science North has also been one of the world's leading creators of award-winning, high impact visitor experiences for people of all ages.

Science North's team of 120 full-time staff includes scientists, technical experts, exhibit developers, producers, video editors and project managers.



Their multidimensional experience in delivering, designing, developing, operating and evaluating high quality educational visitor experiences gives them unique insights into the institutional implications of interpretive planning and design decisions.

Science North knows what it takes to attract visitors and capture their attention with worthwhile, meaningful and fun experiences. We also know how to design these experiences to complement operational goals such as visitor flow, timing and scheduling.





## The Nature Exchange Package

**The Nature Exchange™ turnkey package provides all the training, software, hardware, equipment and cabinetry you need to set up a complete visitor experience, designed to attract repeat visitors.**

Photo shows: 100-200 sq ft space  
Packages available custom to any size

### Development phase

- This is a preliminary consultation to plan the physical site and identify your content needs

### A customized exhibit design and collection<sup>1</sup>

- Custom floor plan, including a complete architectural and interior fitting
- Start up inventory of natural items
- Start up library collection

### Trading software

- Installation of the Nature Exchange™ database and computer trading station

### You need to provide

- Committed staff or volunteers to operate the program
- A space prepared according to Nature Exchange™ specifications<sup>2</sup>

### Training, installation and program support

- Staff training visit at your location
  - one week
- Product installation
  - one week
- Operations manual
- Ongoing training, including workshops, programming and support
- Brand standards guide

<sup>1</sup> View a detailed list of Nature Exchange™ supplies on the Technical Specifications page.

<sup>2</sup> For a complete list of client specifications, view the Client Requirements section on the Technical Specifications page.



## Technical Specifications

**The turnkey package provides everything you need to open a Nature Exchange™ at your facility.**

### Furnishings

- Customized cabinetry
- Storage area shelving

### Graphic Program

- Customized graphic panels

### Equipment

- Polishing machine
- Start-up supplies
- Streak plates
- Magnets
- Hardness point set
- Magnifying glasses
- Insect pinning equipment
- Adjustable spreading board

### Administrative Supplies

- Index boxes
- Paper Trays

### Display

- Bamboo bins
- Specimens
- Specimen mounts
- Rocks
- Minerals
- Polished and unpolished stones
- Fossils

### Library Holdings

- Complete library of field guides and identification books

### Client Requirements

Before *Nature Exchange™* can be installed, clients must procure the following items<sup>1</sup>:

- Base wall paint colour
- Electrical Work
- Maintenance lighting
- Plumbing: sink and tap
- Flooring
- Lighting components

<sup>1</sup>The *Nature Exchange™* design package includes a detailed drawing and specification set and purchasing information. *Nature Exchange™* designers will provide customized plan and specs.



## Database

**The proprietary Nature Exchange database software is included with your package with an annual subscription.**



*Main Menu Screenshots*





## Database

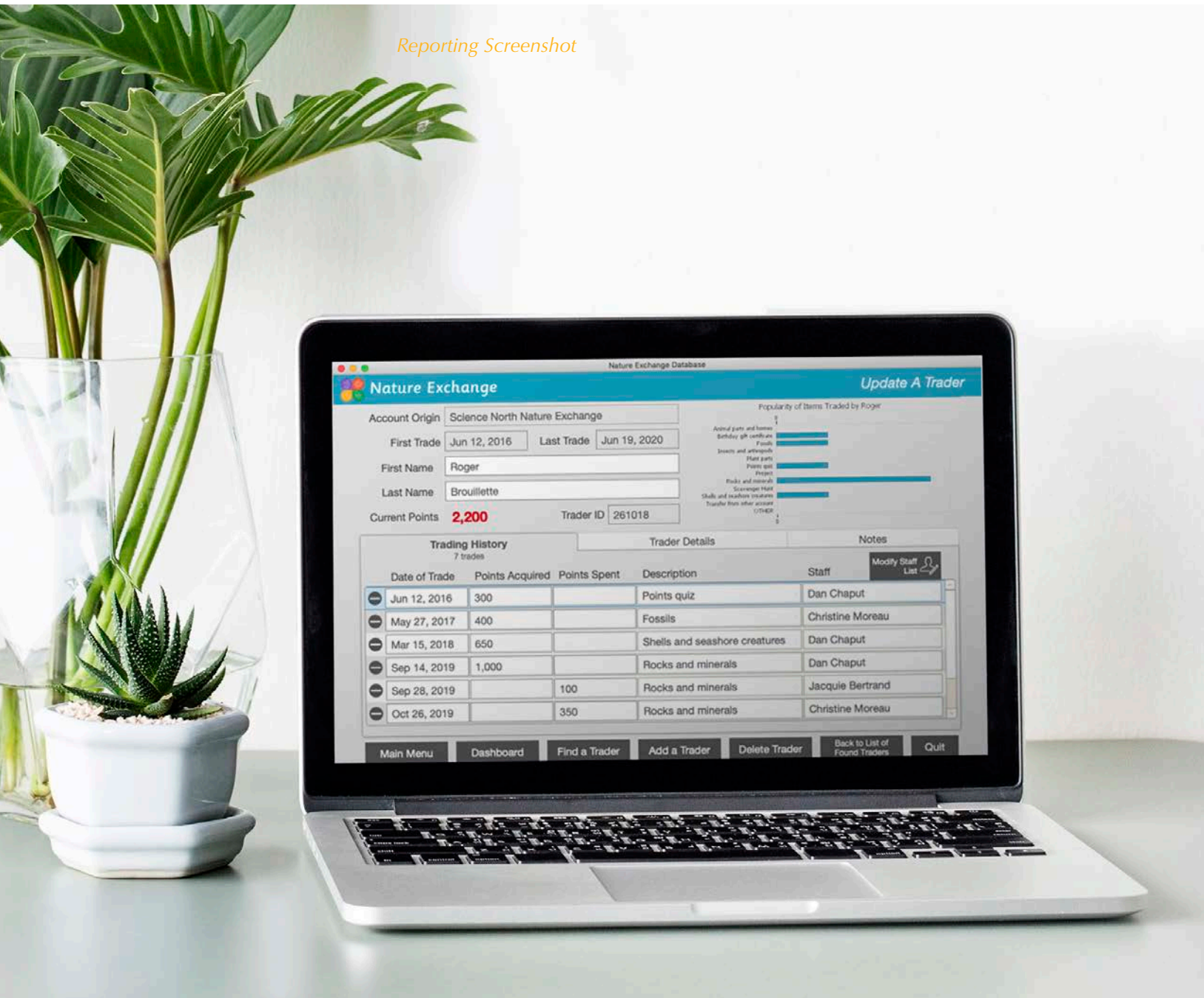
*Dashboard, and Find a Trader Screenshots*





## Database

### Reporting Screenshot





## The Guiding Principles of Ethical Collecting

**In order to acknowledge each institution's important philosophical, ethical and legal responsibilities, criteria have been established to facilitate public understanding and daily operations.**

### Statement of Responsibility

Educational institutions concerned with the stewardship of the living world and the preservation of biodiversity, must provide leadership in the following areas:

- Teaching conservation ethics to the communities that they serve and the daily living of those values.
- Developing a culture of caregiving for all living species.
- Promoting laws and agreements regarding acquisition, possession and trade of all natural items.

*Nature Exchange*™ guidelines vary depending on the institution, their philosophies and their geographical location.

### Trading Guidelines

Example From *The Dallas Zoo's Nature Exchange*™:

- No items will be traded from the institution's collection, living or dead, plant or animal.
- No items regulated by the U.S. Endangered Species Act, or other local, national or international regulations or agreements, will be traded. Specific requirements for confiscation and reporting will be strictly adhered to (e.g. no eggs, feathers or nests).
- No items that involve taxidermy, whether skins, furs or mounted specimens will be traded.
- "Killed" items will not be accepted for trading; however, points will be awarded for information, sharing and understanding. Items will be sent home with suggestions for disposal.
- "Hunted" items will be accepted for trade; however, fewer points will be awarded than if the item was "found".
- "Found" items will be accepted for trade, based upon legal, ethical and sanitary considerations.



## The Guiding Principles of Ethical Collecting cont . . .

### Examples of Tradable Items From *The Dallas Zoo's Nature Exchange*™

#### Artwork

Items that act as interpretations, copies or artistic representations of the natural work will be accepted for trade, including photographs, drawings, sculptures, books, stories, castings and rubbings, with due consideration given to storage and tradability issues.

#### Non-Living Items

Items that will be accepted for trade include rocks, fossils, sand and dirt, with careful consideration of legal issues called into question by the acts of such collecting activity.

#### Living Items

Specific items that will be accepted for trade include plant materials, seeds, leaves, pressed plants, wood and animal materials, such as:

- Homes: shells, cocoons, wasps nests, spider webs;
- Cast-offs: hair, teeth, antlers, snake skins;
- Bones: bones, turtle shells, exoskeletons (crustaceans, bugs, butterflies).





## The Guiding Principles of Ethical Collecting

### Leave no Trace Policy

**Allow others a sense of discovery by leaving rocks, plants, archaeological artifacts and other objects of interest as you find them.**

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#### **Minimize Site Alterations**

Leave areas as you found them. Do not dig trenches for tents or construct lean-tos, tables, chairs or other rudimentary improvements. If you clear an area of surface rocks, twigs or pine cones replace these items before leaving. For high - impact sites, it is appropriate to clean up the site and dismantle inappropriate user-built facilities, such as multiple fire rings and constructed seats or tables. Consider the idea that good campsites are found and not made.

In many locations, properly located and legally constructed facilities, such as a single fire ring, should be left in place. Dismantling them will cause additional impact because they will be rebuilt with new rocks and thus impact a new area. Learn to evaluate all situations you find.

#### **Avoid Damaging Live Trees and Plants**

Avoid hammering nails into trees for hanging things, hacking at them with hatchets and saws, or tying tent guy lines to trunks — thus girdling the tree. Carving initials into trees is unacceptable. The cutting of boughs for use as sleeping pads creates minimal benefit and maximum impact. Sleeping pads are available at stores catering to campers.

Picking a few flowers does not seem like it would have any great impact and, if only a few flowers were picked, it wouldn't. But, if every visitor thought "I'll just take a few," a much more significant impact might result. Take a picture or sketch the flower instead of picking it. Experienced campers may enjoy an occasional edible plant, but they are careful not to deplete the surviving vegetation or disturb plants that are rare or are slow to reproduce.

#### **Leave Natural Objects and Cultural Artifacts**

Natural objects of beauty or interest such as antlers, petrified wood or colored rocks add to the mood of the backcountry and should be left so others can experience a sense of discovery. In national parks and many other protected places, it is illegal to remove natural objects.

The same ethic is applicable to cultural artifacts found on public lands. Cultural artifacts are protected by the Archaeological Resources Protection Act. It is illegal to remove or disturb archeological sites, historic sites or artifacts such as pot shards, arrowheads, structures and even antique bottles found on public lands.





*With increasing pressure on institutional budgets, science centers, aquaria, museums, zoos, and botanic gardens are looking for evidence that visitors are not just exploring scientific ideas and ways of thinking, but are also actively learning from them.*

## Nature Exchange™ Learning Behaviours

To understand how *Nature Exchange™* encourages learning, Science North (Canada) and Techniquest (UK) studied<sup>1</sup> children's experience with *Nature Exchange™*. The study found that eight discrete learning behaviors occur as part of the *Nature Exchange™* interaction, which can be grouped into three categories that reflect increased interaction and depth of involvement.

### Initiation Behaviors — visitors feel safe

1. Test out the activity
2. Spend time watching others engaging in the activity
3. Acquire information and assistance from staff and visitors

Visitors need to feel safe committing themselves to an activity, especially in a public setting. Initiation behaviors permit visitors to “test the waters” with minimum personal risk. This can be seen as the first step in learning.

### Transition Behaviors — visitors get motivated

4. Repeat the activity
5. Express positive emotional responses in reaction to engaging in the activity

Smiles and laughter indicate that visitors are comfortable and ready to engage more thoroughly in the activity. Regardless of whether visitors repeat the activity to master functions or to observe different outcomes, the experience leads to a more committed and motivated learning behavior.

### Breakthrough Behaviors — visitors become involved

6. Refer to past experiences while engaging in the activity
7. Seek and share information
8. Test variables, make comparisons and use information gained from the activity

When visitors relate activities and learning to their everyday life, a personal level of comfort is established that encourages a free flow of ideas and exchanges — this is where the real learning occurs.

An analysis of the *Nature Exchange™* visitor experience indicates that visitors rapidly pass through the first two behavior categories and that high levels of “Breakthrough Behaviors” occur on a regular basis.

<sup>1</sup>Errinton, S., Stocklmayer, S., Honeyman, B., eds. “The Learning Experience in the *Nature Exchange™*.” Using Museums to Popularize Science and Technology (2001): 19. ISBN 0-85092-668-8.



## Nature Exchange™ Learning Experience

### Visitors refer to their own experiences

Visitors commonly refer to their own experiences when presenting a trade item, either by mentioning where it had been found or how they discovered its identity.

*Examples:*

***“I found a beaver stick when we were camping on the French River.”***

***“I found this in a raspberry patch near my house.”***

### Visitors seek and share information

Seeking and sharing information are behaviors that permeate the entire experience — before and during the visit. Visitors study their trading items and are eager to share their new found information with staff.

*Examples:*

***“This rock has a lot of colors.”***

***“This is fluorite...when we scratch it with a nail, the hardness test says it’s fluorite.”***

### Visitors are engaged, involved and motivated

When visitors describe, discuss and draw conclusions about their item with a staff person, they are profoundly engaged and involved. The trading activity takes 5 to 40 minutes. This level of engagement and motivation indicates a rich learning experience about the natural items brought in by the traders and encourages a commitment to learning outside the science center and into the home environment.

*Examples:*

***“I know that starfish eat them and sea gulls too. They open them and eat them.” (A visitor, trading clam shells.)***

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***“Fascination is impossible to teach — it’s too personal. It has to come from exciting experiences and unexpected discoveries and it becomes the ground in which knowledge takes root and grows. The levels of engagement we can see and document in the Nature Exchange™ are the stepping-stones of fascination and the building blocks of knowledge. I have seen it in my son and I have heard it from countless parents.”***

- Dr. David Pearson, Co-Director,  
Laurentian University & Science North’s Graduate  
Diploma Program in Science Communication



## Facts and Figures

- 54,000 traders in the Science North database
- 1 of every 5 Science North visitors engages in trading
- 80% of traders are 4-15 years of age
- 73% of The *Nature Exchange*™ traders return to trade again
- 45% of these traders are members of Science North
- The average trading experience lasts 10 minutes and as long as 4 hours

## Pricing

The price of this *Nature Exchange*™ is based upon the size of your venue.



## Nature Exchange™ Locations

Niagara Glen Nature Centre | Niagara Falls, Ontario, CA  
Telus World of Science Edmonton | Edmonton, Alberta, CA  
Gilroy Gardens, Gilroy | California, USA  
Chattahoochee Nature Center | Atlanta, Georgia, USA  
Las Vegas Springs Preserve | Las Vegas, Nevada, USA  
Tulsa Zoo | Tulsa, Oklahoma, USA  
Kidspace Children's Museum | Pasadena, California, USA  
The Exploration Place | Prince George, British Columbia, CA  
Dallas Children's Zoo | Dallas, Texas, USA  
Science North | Sudbury, Ontario, CA  
Roper Mountain Science Center | Greenville, South Carolina

6 Northern Nature locations:

Red Lake | Kenora | Timmins | Thunder Bay | North Bay | Sault Ste Marie  
Ontario, CA





## Nature Exchange™ Testimonials

“

“Kidspace have had the *Nature Exchange™* operating for almost two years now and it has been wildly successful. It's like we're tricking kids into learning new facts under the guise of fun.”

—André Campbell, Lead Museum Educator

”

“

“One of the greatest benefits of *Nature Exchange™* is the chance for children to experience natural objects they would not normally encounter in their everyday lives.”

—Alexis Nadeau, Outdoor Education Coordinator

”

“

“*Nature Exchange™* allows kids to get into science and it is important to me because I have found a lot of cool stuff to collect and I have learned things that I didn't know.”

—Gabriel Galicia, 12 years old

”

“

“What I really love about the *Nature Exchange™* is that it encourages the kids to interact with nature. Families get to connect with one another while enjoying all of the opportunities that the *Nature Exchange™* provides.”

—Ted Tegart, Lead Museum Educator

”





## Nature Exchange™ Testimonials

“My Grade 3 students love the *Nature Exchange™* so much that we created a similar set up in our classroom that we use on a daily basis as we prepare for our visits to the science centre....the learning impact is impressive and measurable.”

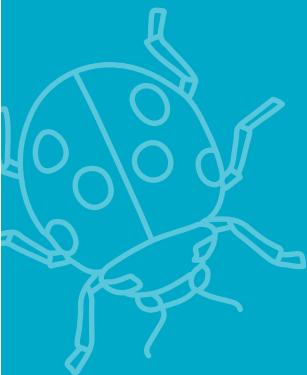
–North Bay Teacher

“I have traded at the *Nature Exchange™* since I was 9 years old. That’s where I discovered the world of insects... and this is where I discovered my love for insects which led me to pursue my University Degree in Entomology.”

–University of Alberta student

“The ability to have the *Nature Exchange™* inspire our visitors seek out science experiences while they are away from our centre is brilliant!”

–Science North Staff Scientist



# Appendix





## What's Included

- One (1) computer trading station (PC or Macintosh system)
- Access to the Nature Exchange Trading Database
- Computer and Database Support

Start-up inventory of natural items including:

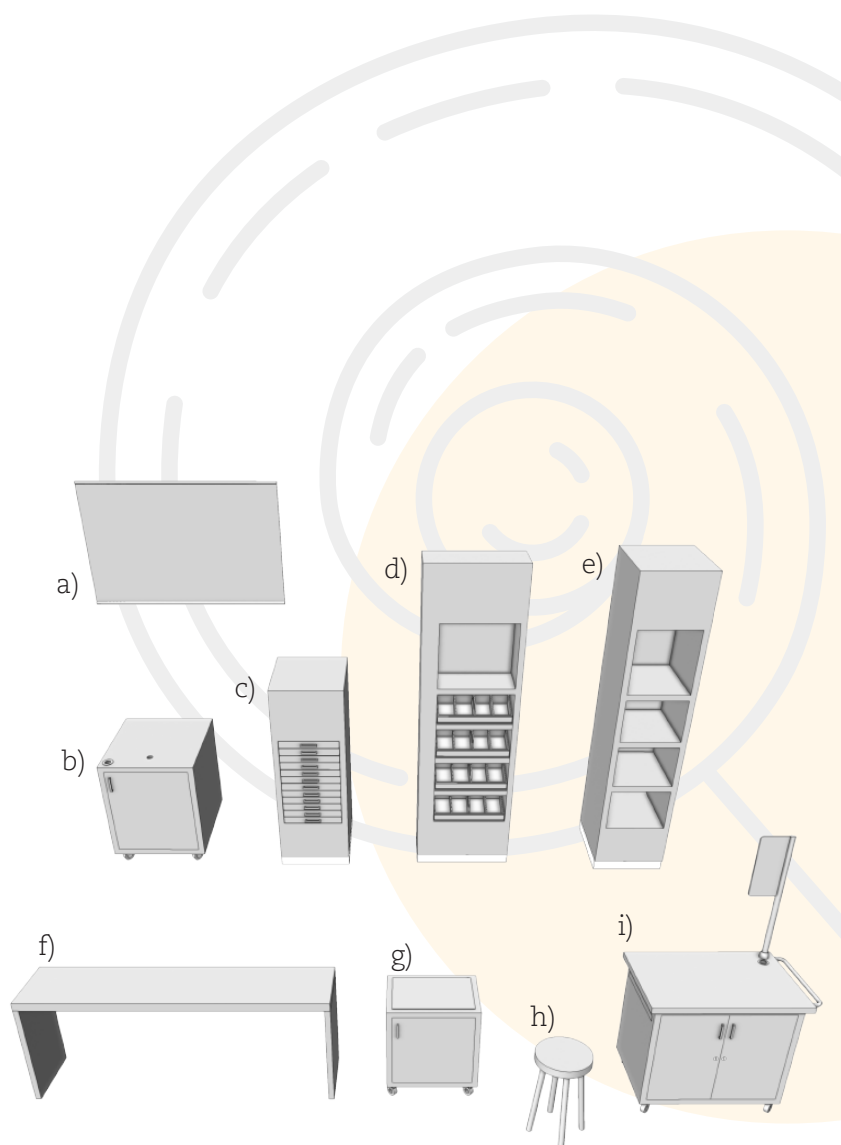
- Rocks and Minerals
- Fossils
- Shells
- Preserved Arthropods

Reference Library Collection

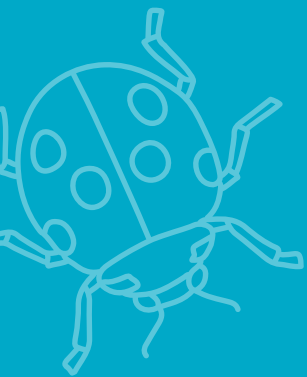
- Assorted regional and North American identification guides for:
- Rocks and Minerals
- Fossils
- Plants
- Insects
- Shells

## SERVICES

- Custom floor plan
- Design of required cabinetry and furniture
- Graphics package including area theming and wall treatments
- Fabrication and Installation
- Of required cabinetry and furniture
- Of required graphics and graphic panels
- Training of Client staff on the operation of the *Nature Exchange*™ experience



- a) Banner, Qty. 7
- b) Microscope Stand, Qty. 1
- c) Drawer Unit, Qty. 1
- d) Shelf Unit, Qty. 4
- e) Tower Unit, Qty. 2
- f) Research Counter, Qty. 1
- g) Mobile Cube, Qty. 1
- h) Stool, Qty. 3
- i) Trading Desk, Qty. 1



## Let's Talk!

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