

Building Knowledge Maps

- [Mandala Knowledge Map Philosophy](#)
- [Building Trees](#)
 - [Subject Trees](#)
 - [Place Trees](#)
- [FAQs](#)
 - [Should I include the type in my place's name?](#)
 - [What if my feature has no name?](#)
 - [What happens once my tree goes live? Can anyone add a term to my tree?](#)
 - [How long will it take for the team to add my subjects and places to Mandala?](#)

Mandala Knowledge Map Philosophy

Knowledge Maps let you build semantic fields or ontologies of terms, which you can then use to label resources you create in Mandala. At the most basic level, Knowledge Maps are terms or tags in a hierarchy. This places a term in the appropriate context.

Furthermore, each Knowledge Map term has its own associated [metadata](#), including term definitions, related terms, alternate names, specific GIS locations, and more. You can see all this information using the Knowledge Maps viewers. Whenever you label a resource in Mandala with a Knowledge Map, it links to the Knowledge Map viewer.

There are currently two types of Knowledge Maps: *subjects*, *terms*, and *places*. Each has its own viewer at mandala.shanti.virginia.edu/subjects and mandala.shanti.virginia.edu/places, respectively. We call the hierarchical grouping of terms a Knowledge Map *tree*.

Summary

Knowledge Maps are:

- subject and place controlled vocabularies...
- ...represented in ontologies...
- ...with their own independent structured data (names, descriptions, illustrations, maps, and more)...
- ...that index content across Mandala, and
- ...that connect:
 - content from one Mandala tool **with** content from another tool; and
 - a Mandala asset **with** information about a keyword; and
 - a term **with** related Knowledge Map keywords.


Subjects, terms, and places are built collaboratively, through crowd-sourcing. Ideally, new subjects or places should integrate into the existing trees at <https://mandala.shanti.virginia.edu/subjects> and <https://mandala.shanti.virginia.edu/places>. We understand that everyone has different needs for their project, and are happy to implement whatever terms most serve your scholarship. We only ask that you come to meetings open to collaboration and productive conversation.

The first step in adding new Knowledge Maps terms is to email the Mandala team at mandala@virginia.edu. We'll set up a meeting to discuss your project.

This guide helps you prepare for your first Knowledge Maps discussion.

Before Your Meeting

- ☐ **Take a look at the existing subject and place trees in Mandala.**

You can browse trees by clicking the **Search** icon ( Unknown Attachment) in [Subjects](#) or [Places](#).

Expand the various categories. Do you see a place where your terms might fit? Are there existing terms you could use?

- ☐ **Bring an example of a tree.**

Ideally, this data will be in the spreadsheet format described below. However, feel free to use anything that conveys how you want your terms placed, like drawings or diagrams.

Building Trees

Subject Trees



Process Tips

Develop captions alongside subject names . Captions are brief summaries of a subject under 140 characters. This helps you justify a subject's place in the tree. You can reuse them when you move into Mandala.

Refer to experts and existing literature to improve your tree. You also don't always need to start from scratch. Ontologies are ongoing fields of research, so there may be an existing ontology that fits your needs. You can talk to us about how you can reuse these existing ontologies in Places at mandala@virginia.edu .

Tree Structure Tips

- **Make sure your terms can stand alone.** While context within the tree enhances subject terms, there are some places within Mandala where terms won't be shown within the tree. Avoiding vague terms like "yes" or "no" make your terms easier to find and use.

 Try	 Avoid
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<ul style="list-style-type: none"> ○ Photography <ul style="list-style-type: none"> ■ Color photography ■ Grayscale photography 	<ul style="list-style-type: none"> ○ Photography <ul style="list-style-type: none"> ■ Color ■ Yes ■ No
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- **Consider both *specific terms* (Andean sheep farmers) and *general terms* (wool).** Remember, your terms can really enhance the Mandala project as a whole, and other people may eventually want to use your broader terms.
- Make sure **the group of subject in a single level is cohesive**. This means every subject in that group has a similar "type" and "scope." Don't put very specific subjects alongside general subjects.
- Make sure **there is a clear flow for each path in the tree**. There should be a logical progression from the topmost point of the tree to each individual subject at the bottom.
- Make sure **the flow goes from broadest to narrowest concept**.
- Remember, other people can (and will) use your terms. Consider thinking briefly about future use cases alongside your own use case.
- **Avoid repetitive tree structures**. Remember, you can use two tags on an asset to suggest a relationship that isn't represented in the ontology. Using the example below, you could tag assets with both the Education Stage and the Interventions.

✓ Try	✗ Avoid
<ul style="list-style-type: none"> ■ Education <ul style="list-style-type: none"> ■ Education Stage <ul style="list-style-type: none"> ■ Preschool ■ K-12 ■ Higher Education ■ Interventions <ul style="list-style-type: none"> ■ Counseling ■ Tutoring 	<ul style="list-style-type: none"> ■ Education <ul style="list-style-type: none"> ■ Preschool <ul style="list-style-type: none"> ■ Interventions <ul style="list-style-type: none"> ■ Tutoring ■ Counseling ■ K-12 <ul style="list-style-type: none"> ■ Interventions <ul style="list-style-type: none"> ■ Counseling ■ Tutoring ■ Higher Education <ul style="list-style-type: none"> ■ Interventions <ul style="list-style-type: none"> ■ Counseling ■ Tutoring

Place Trees

Use the places viewer (by [searching](#) or [browsing](#)) to determine whether an existing place suits your needs.

This can be tricky to decide, especially if there's a place that seems close to what you need. There aren't any "right" or "wrong" reasons to create a place, and these decisions will depend on your project. But here are some things to consider:

Changes in name don't need a new place.

Example: Los Angeles renames the street Rodeo Road to Obama Boulevard.

In Mandala Places: You can make 'Rodeo Road' an alternate name, and set 'Obama Boulevard' as the new primary name. You can also add a note describing the change. You wouldn't need two separate places. [Learn more about Alternate Names.](#)

Changes in location don't (usually) need a new place.

Example:

The Powerhouse Museum in Sidney, Australia decides to move to Parramatta, Australia. The organization stays the same.

In Mandala Places:

You can change the coordinates from Sidney to Parramatta under 'Locations,' then add a note about the change. You wouldn't need two separate places. [Learn more about Locations.](#)

Changes in feature type don't (usually) need a new place.

Example:

A monastery becomes a granary for ten years during the Cultural Revolution.

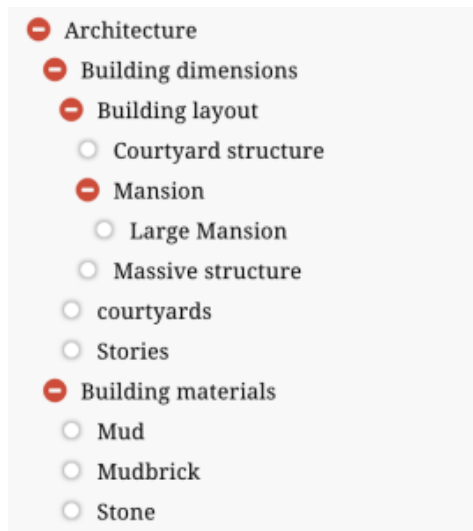
In Mandala Places:

You can track this change in the 'Feature Types' section, where both "granary" and "monastery" can be used. You can also add dates for each feature type. You wouldn't need two separate places. [Learn more about Feature Types.](#)

Place separation depends on the Perspective

Perspectives are a feature specific to the Places Knowledge Maps site. They let you switch between different place trees, each with a different "perspective" or focus. Check out [Using Perspectives](#) for more information, including a full list of perspectives. You should carefully consider the perspective to which you want to add your place. For example, are you trying to represent religious relationships between stops on a pilgrimage? The relationship between administrative units?

Formatting Trees in a Spreadsheet



Knowledge Map hierarchies in Mandala are built with tree data structures. Each knowledge map term is a **node** on the tree. You can place a knowledge map term using its **parent** — that is, the higher-level term the knowledge map falls under. Nodes that fall under a parent are its children. If a node doesn't have a parent — that is, it's the highest possible level of the tree — we call it the **root** node. A node may have many children, but it only has one the parent. In the example above:

- *Architecture* is the root, since it has no parent
- *Architecture* is the parent of two children: *Building materials* and *Building dimensions*
- *Building dimensions* is the parent of three children: *Building layout*, *courtyards*, and *Stories*
- *Building materials* is the parent of three children: *Mud*, *Mudbrick*, and *Stone*
- *Building layout* is the parent of three children: *courtyard structure*, *Mansion*, and *Massive structure*
- *Mansion* is the parent of one child: *Large Mansion*

To format your tree in a spreadsheet, every row represents a node. In the first column, write the node's name. In the second, write the name of the node's parent. If the node is a root, the parent will be blank. Make sure you use consistent names, with consistent capitalization. Here's a table for the sample tree:

Node	Parent
Architecture	
Building dimensions	Architecture
Building materials	Architecture
Building layout	Building dimension
Courtyard structure	Building layout
Mansion	Building layout
Large Mansion	Mansion
Massive structure	Building layout
courtyards	Building dimensions

Stories	Building dimensions
Mud	Building materials
Mudbrick	Building materials
Stone	Building materials

This spreadsheet will help developers import your terms quickly.

FAQs

Should I include the type in my place's name?

Example: Grand Budapest Hotel, Gotham City, River Styx

Use the name however it appears in the source for your place's name -- this can be oral or a literary source.

What if my feature has no name?

You can give it the same name as the feature type. For example, a building with an unknown name can simply be called 'Building.' You can use the Knowledge Map id and other attributes to differentiate places with the same name.

What happens once my tree goes live? Can anyone add a term to my tree?

Once you have added a new set of terms to a tree, we hope you'll become the "owner" for that node. That means you can add and delete any children for which that node is a parent. As the node owner, you can let collaborators add children to that term.

How long will it take for the team to add my subjects and places to Mandala?

The timeline will vary. Places may take longer to add than subjects, especially if you need accurate administrative data. In these cases, adding places may take as long as a month. In your meeting, the Knowledge Maps team can give you more accurate time estimates based on your specific needs. Needless to say, you should start the process well before any deadlines.