

# What is Subcategory Classification?

*a short answer*

Imagine that you're visiting an art museum with some friends. Your goal is to understand as much as possible about all the art contained in the museum. You know that each floor of the museum is devoted to a different time period, and each room is devoted to a different artist.

One approach would be to walk into a room, stand in front of the first piece of art you see, and study it intently. With lots of friends together, you could make some progress towards understanding all the art; starting with depth, you could gradually build breadth.

Another approach would be more holistic - aim for breadth first. Map out the floors, and on each floor map out the rooms. With a good map of all the rooms and floors, you're on your way to understanding the entirety of the art contained in the building. Given two pieces of art, it can be quite hard to tell who made them and when. But if your map tells you they're in the same room, then - presto! - you already know they're from the same artist and same period.

The skills and tools used to map out the building are quite different from those used to understand particular works. You could use an altimeter to figure out which floor you're on, and maybe a GPS to figure out which room you're in; these tools won't really help reveal the secrets of a painting.

Of course, there's a lot more to a painting than knowing who made it and when. But it's a start. And maybe different wings of each floor are devoted to different artistic movements during that period.

The best solution would be to have your friends split up. Some of them could work on mapping out the whole museum, and some of them could focus on understanding specific works. Your combined knowledge would have breadth and depth.

A "category" is a mathematical world/universe/museum. For centuries we have been going deeper and deeper into various mathematical objects contained in our various categories. It's only somewhat recent - since the 1950's - that the tools and perspective have emerged to approach different categories holistically.

Subcategory classification is an attempt to map out the floors and rooms of different categories.