

Planet Trek offers chance to bike or walk through scaled-down solar system

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Dane County residents have a new way to appreciate the solar system. Instead of looking at photos or diagrams, where the planets are usually shown at an unrealistically large size, [Planet Trek Dane County](#) offers pedestrians and bikers a chance to discover the 11 biggest objects in the solar system at the correct scale of size and distance.

The planets — and their distances from the sun — are shrunk 200 million times, says Jim Lattis, director of the University of Wisconsin–Madison's [Space Place](#), which organized the Planet Trek. "Most of the representations you see of the solar system are vastly distorted in terms of how the bodies in our solar system fill up the space. Without this scale representation, you can't understand how empty space is," he says.

The Planet Trek is a series of 11 signs representing the major objects in the solar system, all "orbiting" a sun located on Monona Terrace. The orbiting bodies include the eight planets, plus Pluto (which was considered a planet until 2006) and the giant asteroid Ceres.

At the model's 1-to-200-million scale, the sun is 24 feet across, and itty-bitty Pluto, located 23 miles away on Mt. Horeb's Trollway, is no bigger than a small marble. The intermediate Planet Trek markers are situated along Madison's Southwest Bike Path and the Military Ridge State Trail.

Representing the solar system at the correct scale will help viewers grasp the relationship among the objects, Lattis says. "The idea was to create something that people can walk or bike through, so they would have a physical sense of the scale — 'I took this many steps, or I biked for so many minutes, between the sun and Earth.' You get physiological feedback while you explore this representation of the solar system."

Beyond absorbing the extraordinary emptiness of the solar system, viewers may gain a renewed appreciation for Earth as the one habitable refuge in the void. (Earth, represented near Brittingham Lagoon, is about the size of a small apple.) Traveling through the wetlands and farmlands of Dane County should enhance that understanding, Lattis says. "We hope Planet Trek will draw attention to the trails and encourage people to use them, so not only will they get the astronomical content, but also appreciate the wildlife, botany and geology of our area."

Locating and sizing the planets at accurate scale makes it easier to see how the solar system coalesced from a rotating cloud of gas and dust about 4.5 billion years ago, he says. Mercury, Venus, Earth and Mars — the four rocky, metallic inner planets — are all close together (Mars, the furthest from the sun, is found a bit west of Doty Street on the bike trail). When these planets formed, conditions were warm enough to drive off most of the light elements, leaving four planets near the sun that are rich in heavy elements like carbon, oxygen, iron and silicon.

Further out, Jupiter begins the series of giant gas planets, which formed where temperatures were cold enough for hydrogen and helium to accumulate.

Jupiter (located near Lake Wingra) is a peculiar case, Lattis adds. The long gap between Mars and Jupiter suggests that Jupiter's intense gravity gathered so much material that no planet could form nearby. And Jupiter's many moons echo the pattern of planets in the solar system: the dense, rocky moons are found in the lower orbits, and the icy moons are further out.

"It's like a mini solar system," Lattis says. "Seeing the same overall pattern of the solar system in the Jupiter system gives us confidence that we understand how the sun and the planets were formed."

That understanding has gained importance now that astronomers have found more than 300 planets beyond our solar system, Lattis says. "When we take the Planet Trek, we are actually taking a trip through a very typical example of something that has been repeated in the universe billions of times," he says.

Planet Trek Dane County is part of the celebration of the International Year of Astronomy, which commemorates 400 years since Galileo first used a telescope. The trek, inspired by Madison artist Nick Schweitzer, will remain in place until October. UW Space Place developed the trek with assistance from the Friends of Washburn Observatory, the city of Madison, Monona Terrace Convention Center, Wisconsin Department of Natural Resources, the village of Mt. Horeb and the Friends of the Military Ridge State Trail.

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