

Unit 9: Brunelleschi's Dome

Narrator: Imagine this: It's 1418 in Florence, Italy. Filippo Brunelleschi has been asked to build a dome for the Santa Maria del Fiore, in Florence. Brunelleschi was not an architect. He was a clockmaker. But he loved beautiful buildings and, for him, it was the job of a lifetime. He thought hard and very carefully.

Then he had an amazing idea. He suggested a design for the dome that experts don't fully understand even to this day. At the time, domes were often built as semi-circles. But this dome needed to have eight sides. So it would need to be very tall and very strong. Even worse, the bottom of the dome was shaped like an octagon with no true center point.

But Brunelleschi solved the problem. He would build not one, but two domes: an inner dome and an outer dome. The domes would be held together by giant brick arches and rings of stone and wood. The rings would keep the heavy dome from breaking or changing shape. To move heavy materials up to the top of the dome, Brunelleschi designed new lifting machines. His inventions were far ahead of his time. It seems Brunelleschi had everything he needed to build the dome—a completely new design, amazing inventions, and confidence. But how did he really do it?

One big problem was that while the workers were putting in the bricks, nothing was holding the growing structure together. So, Brunelleschi had his workers put the bricks in a special pattern. This pattern would hold the bricks together. He also asked the workers to give the sticky material between each row of bricks time to dry before adding more bricks. Because of this, the dome was built very slowly. It grew about 30 centimeters a month. But perhaps what's most confusing to experts is how he was able to put every brick in just the right position. No one knows exactly how he did it, but it worked. The eight sides of the dome came together in just the right way.

In all, it took sixteen years to complete the dome. When he died in 1446, Brunelleschi did not leave behind any sketches or details of his amazing design. Today, it remains one of the largest domes in the world, more than 5 hundred years after it was built.