OK, now though the last thing that I'm going to tell you about is why this matters.

And just like the goody bags, when I started teaching class three years ago, I wanted to also protect a certain fundamental part of each lecture.

And I call it my why this matters moment.

Sometimes it goes on for more than a moment.

But I really, really want every lecture to connect what we just learned to a big picture.

Most of the time, it's some application or some global challenge.

Right I want you to see those connections, that what you're learning is directly relevant to some big thing.

So my why this matters moment is really related to these discoveries themselves.

Please give me till 11:55.

I will always let you go on time, 11:55.

But please don't start putting stuff away because it's distracting to everybody.

So two and a half minutes.

We name the age we live in often by the element, by the atom, by the material, by the material that was most useful at the time.

The Stone Age, the Bronze Age, the Iron Age.

I would say we've moved through the industrial age, the age of plastics, the age of silicon.

As a material scientist and engineer, I love this.

I love that you name the age you live in by the material that mattered.

But I also love that we will never do that again, ever.

And the reason is that we live in a truly unique age now, a different age, one in which we can put atoms, we can realize Feynman's dream and put atoms anywhere we want.

The question is not, can we make it as much any more as it is, what should we make?

We live in the age of atomic design.

And that is really important.

And I mentioned the phone and the 63 elements.

You know, look, this is called a revolution.

This is called a revolution.

You went in 50 years from $1 per transistor, eight orders of magnitude cheaper.

In 2012, it became cheaper to print a transistor on a chip than a character in a newspaper.

That's a revolution but that revolution, it started as a processing revolution with one really important element, silicon.

And now it's a materials revolution, with 63.

It's a chemistry revolution.

And the reason this matters so much, what are these things, is because so many of the problems that we face in this world today, so many of the global challenges, will rely on new chemistry and on new materials.

Those are the bottlenecks.

Those are the bottlenecks in costs, in efficiency, in processing, in properties.

And those are the kinds of things that we're going to be talking about all throughout the fall.

And that is our construction set.

And we will build this on Friday.

So see you guys all on Friday.

[INTERPOSING VOICES]