

Exploring Tools—Dress Up Like a Nanoscientist

Try this!

1. Have a friend stand a few feet in front of you. If they want, have them put on a pair of goggles. Hold up the “Dress Up Like a Nanoscientist” card in your hand and align your friend’s face with the cutout.
2. Imagine your friend as a future nanoscientist! If you have a camera (or a phone with a camera), take a picture!

Tip: To keep things in focus, you may need to hold your arm straight out and have your friend move further back away from you.



What’s going on?

In a cleanroom, scientists learn about and make things that are too small to see. Special clothing must be worn in cleanrooms. Some of the clothing protects the scientists from harmful things in the cleanroom, but most of it actually protects the *lab* from harmful things on the scientists!

People who work in cleanrooms put on a lot of gear before they enter the lab. They get dressed in a special room—called a gowning room. They even get dressed in a special order to keep as clean as possible!

- **Shoe covers** go on over shoes.
- **Hoods** cover heads.
- **Head-to-toe suits** cover the whole body.
- **Booties** go on feet and legs.
- **Goggles and gloves** cover hands and eyes.
- **Badges** identify people.



Scientists wear special clothes to work in a nano lab!

How is this nano?



Dust-free paper and pens keep cleanrooms clean

Nano labs are clean. To make tiny things, scientists need to work in a very clean place. These special workspaces are called cleanrooms. To keep dust out of cleanrooms, scientists put on special head-to-toe suits that cover everything but their faces. They also use special supplies, like dust-free paper and pens that release fewer chemicals and fibers into the air. No pencils are allowed—they create too much dust!

Nanoscale devices are so small that even a tiny piece of dust can be much larger than many of the features. A single speck can ruin the whole device! (A nanometer is a billionth of a meter.)

In a cleanroom, scientists and engineers take advantage of special properties at the nanoscale to create new materials and devices.

Learning objectives

1. To make tiny things, scientists need to work in a very clean place.
2. Special clothing must be worn in cleanrooms.

Materials

For the activity photo-op:

- “Dress Up Like a Nanoscientist” cards
- Goggles

For the presenter:

- Tyvex™ suit
- Goggles and gloves

The cards can be downloaded from www.nisenet.org/search/nanodays_product. If you print the cards from the digital file, be sure you don't allow page scaling.

Notes to the presenter

Dress up in the enclosed Tyvex suit and wear gloves and goggles to attract visitors and encourage discussion of why nanoscientists wear special clothing to work in a cleanroom. Have visitors take a look at the bottom of their own shoes as a way of understanding the kind of dirt scientists are trying to keep out of the cleanroom.

Encourage visitors to use cameras or camera phones to take a picture of their friend framed in the card. This kind of photography is called perspective photography. If their hand shakes too much to take a picture, they can try to steady the card in the activity sign holder.

When setting up this activity, make sure the room is big enough so that people can be far enough apart to get a good picture. Try it out yourself to see what works; you can even put tape down on the floor to help guide visitors.

Related educational resources

The NISE Network website (www.nisenet.org) contains additional resources to introduce visitors to the fundamentals of nanoscale science and technology:

- Public programs include *Nanotechnology: Small Science, Big Deal!*, *Horton Hears a Who*, and *Wheel of the Future*.
- NanoDays activities include *Exploring Size—Powers of Ten Game*, *Exploring Size—Memory Game*, *Exploring Size—StretchAbility*, and *Exploring Size—Scented Balloons*.
- Media include the *Intro to Nanotechnology* video, the *Mr. O* video series, and the *Nano and Me* video series.
- Exhibits include the *Nano* mini-exhibition and *At the Nanoscale*.

Credits and rights

This activity is adapted from the *NanoLab Dress Up Like a Nanoscientist Exhibit* created for the NISE Network by the Sciencenter, Ithaca, NY.



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