

# Puzzle Blocks

Surprising things have nano connections!

## Description

In this activity, kids build puzzles, using blocks with images related to nanotechnology.

Kids ages 3 and up will enjoy putting together the puzzles. Kids ages 7 and up can make the puzzle blocks themselves.



## Materials

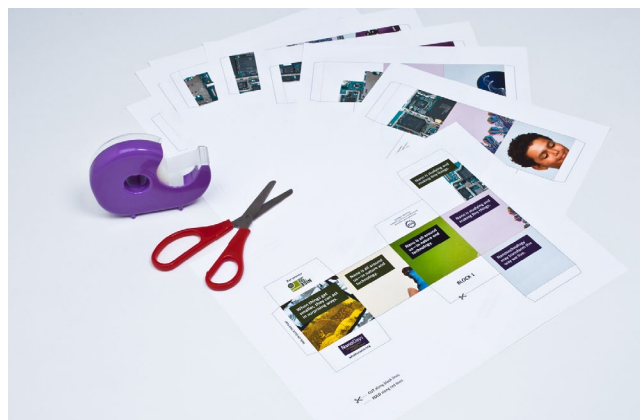
Puzzle blocks print file  
[download from whatisnano.org](http://whatisnano.org)

Cardstock or heavy paper  
for printing the blocks

Scissors

Tape

**Note:** A group of older kids can collaborate on making the blocks, or an adult can prepare them ahead of time. Be sure to download the separate file to print the images for the blocks.



## Time

**Preparation:** Up to 45 minutes to make the blocks (*less time if several people help*)

**Activity:** 15 minutes

**Cleanup:** 5 minutes

## Safety

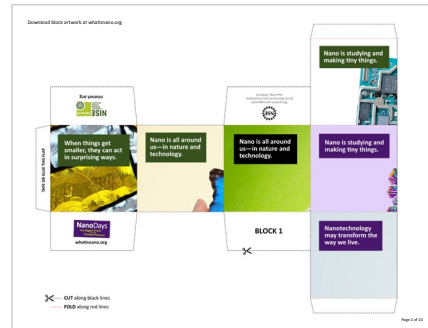
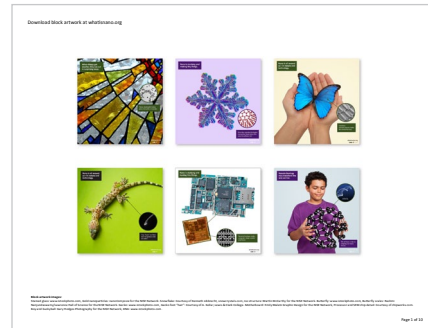
Use normal precautions while doing this activity. Take care using the scissors.

# Step 1

Print out the block design onto cardstock or other heavy paper. There are 10 pages.

**TIP**

Page 1 shows the different puzzle pictures you can build from the blocks. Pages 2-10 are the shapes you'll cut out and fold up to make the blocks.



# Step 2

Cut out the blocks, using pages 2-10.

Cut along the black lines.



# Step 3

Fold and tape the blocks.

Fold along the red lines to make a cube.

Tuck the tabs inside and tape the seams.



# Step 4

Now you're ready to build the puzzles!  
Look at page 1 of your printout to see all  
the pictures you can build.

Can you figure out what all these  
different things have to do with  
nanotechnology?



## What's going on?

All these pictures have a nano connection—though you may be surprised by some of them!

Nanoscale science and engineering is a big field that includes a lot of different subjects. Many different kinds of researchers work together to understand nano effects in nature and build new nano materials and technologies.



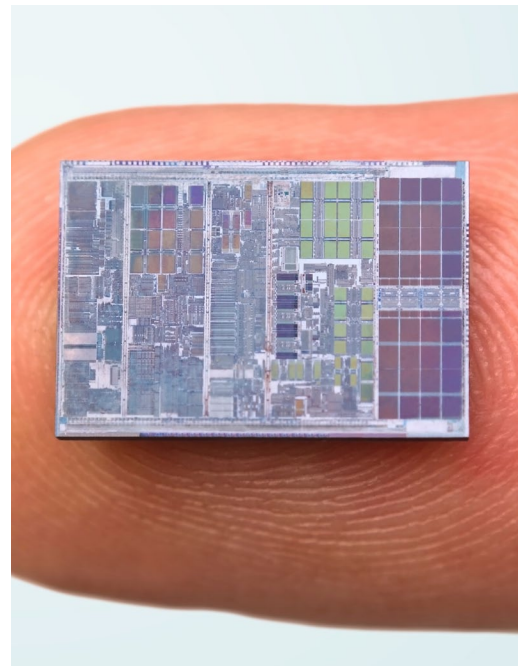
## How is this nano?

When things get smaller, they can act in surprising ways. For example, gold looks red when it's nano-sized!

Nano isn't only in technology—nano effects can be found in nature, too. The iridescent color of some butterflies and the “sticky” feet of geckos are both caused by tiny nanostructures.

Nano researchers study and make tiny things. Today, nanotechnology makes computer chips smaller and faster. One day, nanotechnologies may self-assemble the way snowflakes do!

As more nanotechnologies are developed, they may transform the way we live.



Computer chip

## Nanotechnology

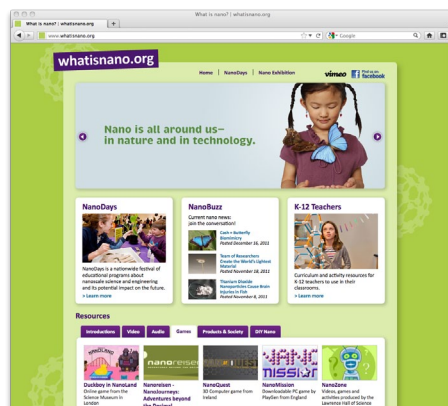
Nanotechnology takes advantage of the way things behave differently at the nanoscale to make new products and technologies.

Researchers are using nanotechnology to develop new sources of energy, medical treatments, water filters, and ways to grow and preserve food.



## Learn more

Learn more at:  
[www.whatisnano.org](http://www.whatisnano.org)



## Credits



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Images of stained glass, computer chip, farm, [www.istockphoto.com](http://www.istockphoto.com)  
Activity photographs, Gary Hodges Photography for the NISE Network.

Block artwork images:

Stained glass: [www.istockphoto.com](http://www.istockphoto.com), Gold nanoparticles: nanoComposix for the NISE Network. Snowflake: Courtesy of Kenneth Libbrecht, [snowcrystals.com](http://snowcrystals.com), Ice structure: Martin McCarthy for the NISE Network. Butterfly: [www.istockphoto.com](http://www.istockphoto.com), Butterfly scales: Rashmi Nanjundaswamy/Lawrence Hall of Science for the NISE Network. Gecko: [www.istockphoto.com](http://www.istockphoto.com), Gecko foot "hair": Courtesy of A. Kellar, Lewis & Clark College. Motherboard: Emily Maletz Graphic Design for the NISE Network, Processor and SEM chip detail: Courtesy of [chipworks.com](http://chipworks.com). Boy and buckyball: Gary Hodges Photography for the NISE Network, DNA: [www.istockphoto.com](http://www.istockphoto.com).