

# Exploring Size— Memory Game

*Can you match pairs of objects  
big and small?*

**Virus**  
80 nm



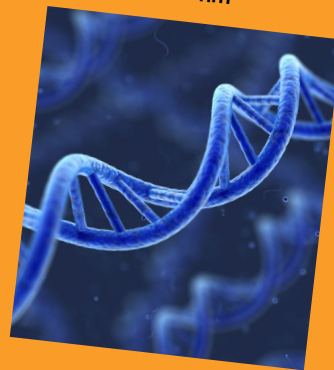
Ebola virus that causes a viral hemorrhagic fever in humans and primates.

**Bacteria**  
2  $\mu$ m



*E. coli* bacteria normally found in intestines that can make people very sick.

**DNA**  
2.5 nm



Genetic code present in all life.

**NanoDays™**  
The Biggest Event  
for the  
Smallest Science!

[whatisnano.org](http://whatisnano.org)

## Exploring Size—Memory Game

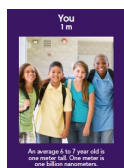
### Try this!

1. Shuffle the cards and arrange them face down on the table.  
(You can line them up in rows or set them out randomly.)
2. Pick two cards and flip them right side up.
3. If the cards match, put them to the side and take another turn.  
If they don't match, flip them back over and try again.
4. Look for matches until you find all the pairs.



### What's going on?

Things come in different sizes—and size is important! We use different scales to measure things that are different sizes. In this game, we explore three different scales: the macroscale, the microscale, and the nanoscale.



#### Macroscale objects are on purple cards

The macroscale includes objects we can see with our eyes. There are lots of ways to measure objects on the macroscale, including meters. (A meter is a little over three feet.) Kids around six or seven years old are about a meter tall.



#### Microscale objects are on green cards

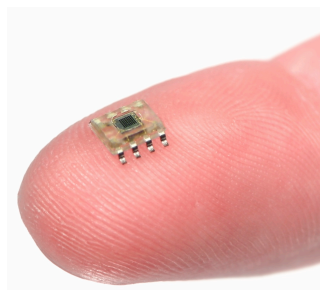
The next scale down is the microscale. To see microscale things clearly, we need tools like microscopes. Objects on the microscale are measured in micrometers. A micrometer is a millionth of a meter. Red blood cells are measured in micrometers.



#### Nanoscale objects are on orange cards

There's an even smaller scale: the nanoscale! Nanoscale things are so tiny, we can't see them with just our eyes. We need special tools to make images of them. Nanoscale objects are measured in nanometers. A nanometer is super small—a billionth of a meter! DNA is measured in nanometers.

### How is this nano?



Microchip on finger

**A nanometer is a billionth of a meter.** That's really tiny! Nanometers are used to measure things that are too small to see, like atoms and molecules, the basic building blocks of our world.

Nanoscale science focuses on things that are measured in nanometers. Scientists use special tools and equipment to work with things that have nanometer-sized parts, such as microchips.

In the field of nanotechnology, scientists and engineers make new materials and tiny devices. Nanotechnology allows them to make things like smaller, faster computer chips and new medicines to treat diseases like cancer.

