



Powers of Ten Game

Can you place your cards in order?

Try this!

1

Deal five cards to each player.

2

Place three cards face up on the table, starting three vertical lines of play.

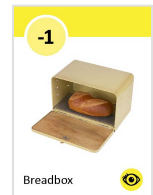
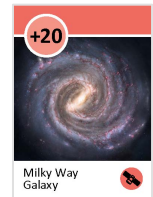
3

Players take turns adding a card from their hand above or below one of the lines of play. Bigger numbers go on top of the line and smaller numbers go on the bottom.

- You can't play a card if it's the same number as the last one.
- You can't sneak a card into the middle of a row—it has to go on the top or bottom.
- If you can't play a card, pass on your turn.

4

Whoever gets rid of all their cards first wins! If no one can get rid of every card, then whoever has the fewest cards at the end wins.



Sample row

Things in the universe come in different sizes—and size is important! Nanometers are used to measure tiny things.

What's going on?

The objects on the cards are organized according to powers of ten. Each number on the scale represents a ten-fold change in size. An object marked with a 0, like the pirate, is about a meter tall. An object marked with a +1, like the Statue of Liberty, is around ten times bigger than a pirate. An object marked with a -1, like a chicken, is around ten times smaller.

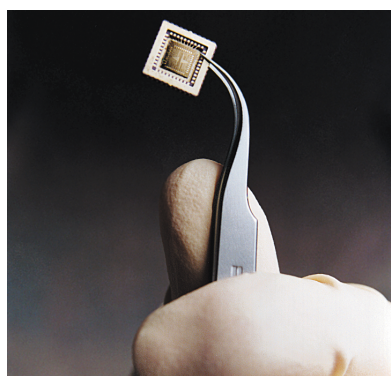
Really tiny objects, like DNA, are marked with even lower numbers. DNA (-9) is so tiny it's measured in nanometers! In the emerging field of nanotechnology, scientists work with very tiny things measured in nanometers.

Nanometers, centimeters, and meters are all part of the metric system. The metric system is a measuring system using units based on powers of ten. Scientists use the metric system because it makes calculations easier.



How is this nano?

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.



Computer chip

Nanoscale science focuses on things that are measured in nanometers. 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.