

Mission: Can changing temperature make molecules move?

Age: 5+
Materials: \$12

Time: 30 min
(Set-up: 5 min | Activity: 20 min | Clean-up: 5 min)

NGSS Alignment of Molecule Races Activity

The information below may not include every area that this activity can be linked to NGSS concepts

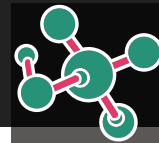
Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter

- Middle School
 - Gases and liquids are made of molecules or inert atoms that are moving about relative to each other.
 - In a liquid, the molecules are constantly in contact with others; in a gas, they are widely spaced except when they happen to collide. In a solid, atoms are closely spaced and may vibrate in position but do not change relative locations.

Performance Expectations

- MS-PS1-4: Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.



Crosscutting Concepts

Cause and Effect

- **Grade 3-5**
 - Cause and effect relationships are routinely identified, tested, and used to explain change.
- **Middle School**
 - Cause and effect relationships may be used to predict phenomena in natural or designed systems.
 - Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.

Engineering and Science Practices

Developing and Using Models

- **Grade 3-5**
 - Develop and/or use models to describe and/or predict phenomena.
 - Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.
- **Middle School**
 - Develop or modify a model—based on evidence – to match what happens if a variable or component of a system is changed.
 - Develop and/or use a model to predict and/or describe phenomena.
 - Develop a model to describe unobservable mechanisms.