

# Expansion and Contraction of Solids, Liquids, and Gases

---

CARL A FURR-GRADE 5



# Important Vocabulary

---

**Expansion**-the condition of making something larger.

**Contraction**-the condition of making something smaller.

# What happens to a solid when it is heated?

---

When a solid is heated, it will EXPAND (get longer or appear larger). The molecules spread out.

When a solid is cooled, it will CONTRACT (get shorter or appear smaller). The molecules become tightly packed.

[Video](#)

# Real World Example



BEFORE

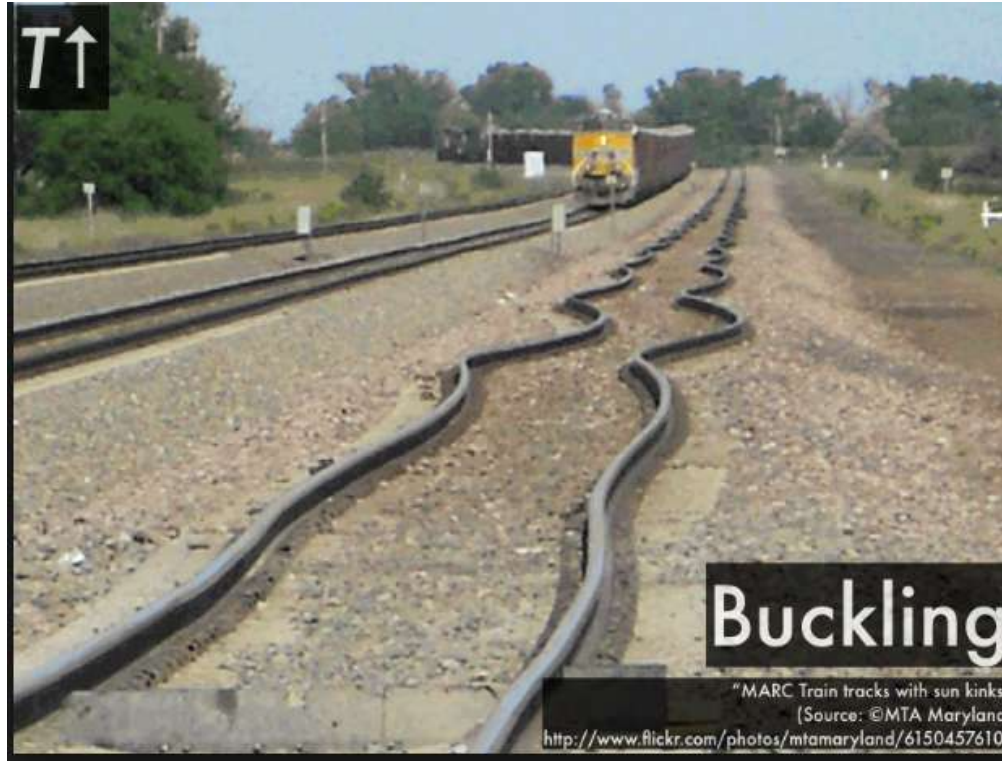


AFTER

Railroad tracks are made with gaps because when they are heated by the sun, extreme heat or friction from the train, they get longer. What do you think would happen if they gap wasn't there?



# Buckling (bending) can cause the train to derail and crash



# More Examples



Bridges

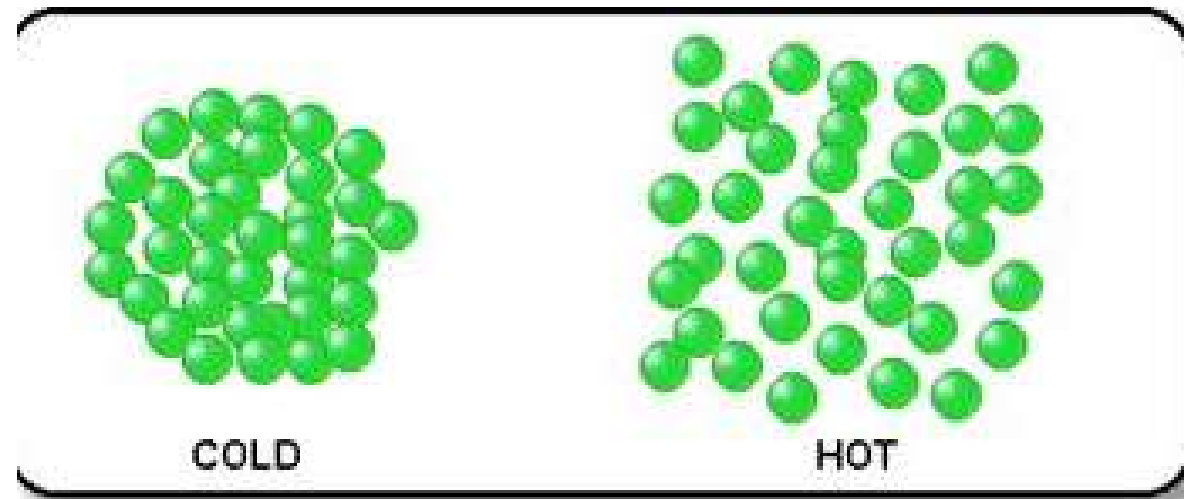


Opening a jar

# What happens to a gas when it is heated?

---

When a gas is heated, its molecules move rapidly causing the gas to disperse (spread out).



# What happens to liquids as heat is added or taken away?

---

Liquids, such as water, have a special molecular bond. Unlike solids, liquids expand when they are cooled and contract when they are heated.

Have you ever put a water bottle in the freezer on a hot summer day? What happened to the bottle once it was frozen?



# Ice Cube Tray



BEFORE



AFTER

What do you see? What happened?

# Real World Damage Caused by Water

---

In the winter, when it rains, the water seeps into the cracks in the roads and sidewalks. Once the temperature falls below freezing (32 degrees Fahrenheit), what do you think happens to the water in the ground?

Think about the ice cube tray and the water bottle.

# Cracks and Potholes



# Conclusion

---

Solids, liquids, and gases are affected by the **change in temperature**.

Temperature can cause things to:

**Expand**-get longer or larger

**Contract**-get shorter or smaller