

## **States of Matter (30 Minutes - Based on Team Schedule)**

**Description:** This event tests participants' knowledge of matter and might be asked to build a model of a common compound. This event has a written test and may/may not include "hands-on" stations.



**Participants per Team:** 2

### **Spirit of the competition:**

- It is a rules violation if coaches, parents, mentors, or spectators enter the competition area or communicate with the team members at any time during the competition. Violation of this rule will place the team below all other teams.

**Teams need to bring:** Pencils. Optionally a four-function calculator.

**Safety Requirements:** None

**The Competition:** Students will answer questions on the states of matter that may include but are not limited to the topics below.

### **Classification of Matter:**

- Solids, Liquids, Gases, Plasma
- Pure Substances
- Mixtures
- Elements
- Allotropes, Compounds, Colloids

### **Common Compounds or Mixtures:**

- carbon dioxide
- methane
- water
- ammonia
- sodium chloride
- milk

### **Properties of Matter:**

- Properties of Liquids – Viscosity, Surface, Tension
- Properties of Gases – Effusion, Diffusion
- Properties of Solids – Crystalline, Amorphous
- Properties of Plasma – Conductivity

### **Atomic Structure:**

- Atoms, Protons, Neutrons, Electrons
- Atomic and Mass Numbers
- Isotopes
- Chemical Symbols

### **Atomic Bonding:**

- Ionic
- Covalent
- Metallic

### **Scoring:**

- Points are awarded for each correct response on the written test.
- Ties will be broken by the accuracy or quality of answers to select questions chosen by the event leader prior to the competition.

### **Possible Resources:**

Division A will not release previous tests, or the exact resources used by the Event Supervisor or test writer for any events. The listed resources are meant as a starting point. It is up to the competitor to research further.

- [States of matter \(video\) | Khan Academy](#) - [States of matter follow-up \(video\) | Khan Academy](#)