INTRODUCTION

What’s colorless, tasteless, and (mostly) odorless? Surrounds and protects us throughout our lives? Makes Earth habitable? Is so fragile that it needs our care and protection? OUR ATMOSPHERE! Earth’s atmosphere is vital to our planet—but most people know very little about it. It is where shooting stars blaze, where the ozone layer protects all life and where weather forms.

Earth’s atmosphere has been changing since Earth began. Once living things evolved the ability to carry out photosynthesis, perhaps 2.7 billion years ago, they began to remake the atmosphere. Ever since then, life and Earth’s atmosphere have waltzed together. As far as we know, the relationship is unique to our planet. The Smithsonian Institution’s National Museum of Natural History developed the exhibit Change is in the Air to explore the deep history, chemistry, and importance of earth’s atmosphere in an engaging new way!

These eight educational activities extend the themes and content of the exhibit to middle school students, teachers, and families. The lesson plans are designed to be interdisciplinary, interactive, and fun. It is our hope that they inspire you, your families, and your students to use scientific inquiry to learn more about the forces that shape our dynamic planet.
# National Science Education Standards

**Content Standards for Grades 5 – 8**

National Academy of Sciences, 1996

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Scientific Inquiry

- Abilities necessary to do scientific inquiry
  - How do we know
  - Atmosphere Reacts: ●
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  - Frisbees: ●
  - Greenhouse in a Jar: ●
  - Ancient Atmospheres: ●
  - What is the Atmosphere?: ●

- Understandings about scientific inquiry
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Physical Science

- Properties and changes of properties in matter
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  - What is the Atmosphere?: ●

- Motions and forces
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  - Atmosphere Protects: ●
  - Frisbees: ●
  - Greenhouse in a Jar: ●
  - Ancient Atmospheres: ●
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- Transfer of energy
  - How do we know
  - Atmosphere Reacts: ●
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- Structure and Function in Living Systems
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- Regulation and behavior
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