



September 2022

## Welcome to Science!

My name is Ben Gross, and I am looking forward to a year full of discovery, exploration, and learning! I like to keep these things in mind: 1) Mistakes in my classroom are expected, respected, and inspected. 2) “Smart isn’t something you are; it is something you become.” 3) I am here to coach students to do their best.

## Contact Information

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## Overview of the Year

The year is divided into three trimesters, and the first two have themes that Science, Social Studies and Language Arts all address:

- 1) Living in Vermont (Theme 1)  
*A study of the ecology of Vermont*
  - a) What makes Vermont’s forests unique?
  - b) How can we educate our community about our forests’ past, present, and future?
- 2) Beliefs (Theme 2)  
*A study of space science and chemistry*
  - a) What is the universe made of?
  - b) How do we fit into it?
- 3) Science Fair
  - a) Design and conduct an experiment on a topic of interest

## Transferable Skills: TSA’s Gateway Standards

The TSA middle and high schools focus on the following 7 transferable skills. In all their classes, students will be generating evidence of their progress in these 7 areas:

- 1) ACQUIRE: Acquire Information Critically



- 2) REASON: Think Critically and Reason
- 3) DESIGN: Demonstrate Creativity and Problem-Solving and Design
- 4) COMMUNICATE: Communicate Effectively
- 5) SELF-DIRECT: Take Responsibility for Learning and Growth
- 6) ENGAGE: Commit to Community and Responsible Citizenship
- 7) SUSTAIN: Exploring Social, Emotional and Physical Well-Being

### **Transferable Skills: Science**

In Science class, we will have opportunities to work on the following specific indicators within the TSA 7 Gateway Standards:

- 1) ACQUIRE: Acquire Information Critically
  - a) Analyze Text
  - c) Research
- 2) REASON: Think Critically and Reason
  - d) Use Evidence and Supporting Detail
- 3) DESIGN: Demonstrate Creativity in Problem-Solving and Design
  - a) Analyze a Problem, Process, and Results
  - e) Use and Develop Models
  - f) Investigate Approaches and Discover Solutions
- 4) COMMUNICATE: Communicate Effectively
  - e) Oral Communication and Presentation Skills
- 5) SELF-DIRECT: Take Responsibility for Learning and Growth
  - c) Take Initiative and Responsibility for Learning
  - x) Engage with Learning

Additionally, we will learn the following science-specific skills:

- Investigations
  - Observation Skills
  - Asking Questions/Making Hypothesis
  - Planning
  - Measurement/Data Collection

### **Science Content**

The content of our science class is aligned with the Next Generation Science Standards (NGSS). Here are the NGSS topic content standards, organized by theme:



- 1) Living in Vermont: *A study of the ecology of Vermont*
  - A. [MS-LS2-1](#) Analyze and interpret data about population dynamics and resource availability.
  - B. [MS-LS2-2](#) Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems (ex predation, competition).
  - C. [MS-LS2-3](#) Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem (food webs).
  - D. [MS-LS2-5](#) Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
  
- 2) Beliefs: *A study of space science and chemistry*
  - A. [MS-ESS1-2](#) Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
  - B. [MS-ESS1-3](#) Analyze and interpret data to determine scale properties of objects in the solar system.
  - C. [MS-PS1-5](#) Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.
  - D. [MS-PS1-1](#) Develop models to describe the atomic composition of simple molecules and extended structures.
  - E. [MS-PS1-2](#) Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

**Welcome! It's going to be a great year!**