

# OpenSciEd Massachusetts Standards Guidance

## 7<sup>th</sup> Grade: Earth’s Resources & Human Impact

This document is to provide guidance to Massachusetts 7th grade teachers who are implementing [OpenSciEd](#). This guidance assumes the OpenSciEd curriculum is being implemented across grades 6-8, following the [MA coherent sequence by grade level](#) (*download*). The following guidance identifies the MA standards addressed in the [Earth’s Resources & Human Impact](#) unit, and the most effective use of the OpenSciEd materials for 7th grade teachers.

### Scope and Sequence Recommendation

Implement the *Earth’s Resources & Human Impact* unit in 7th grade, after the *Ecosystem Dynamics & Biodiversity* unit and before the *Natural Hazards* unit. *Earth’s Resources & Human Impact* has significant coherence when building on experiences from the *Ecosystem Dynamics & Biodiversity* unit (recommended for 7th grade in MA). *Earth’s Resources & Human Impact* addresses three 7th grade earth & space and technology & engineering standards, and two 8th grade earth & space standards. Refer to the [MA coherent sequence by grade level](#) (*download*) for the complete scope and sequence recommendation.

### 7<sup>th</sup> Grade Standards in *Earth’s Resources & Human Impact*

Standards in unit	Lessons building towards standards
<p><b>7.MS-ESS3-4.</b> Construct an argument supported by evidence that human activities and technologies can mitigate the impact of increases in human population and per capita consumption of natural resources on the environment.</p>	Lessons 10-17
<p><b>7.MS-ETS1-2. [Partial]</b> Evaluate competing solutions to a given design problem using a decision matrix to determine how well each meets the criteria and constraints of the problem. Use a model of each solution to evaluate how variations in one or more design features, including size, shape, weight, or cost, may affect the function or effectiveness of the solution.</p> <ul style="list-style-type: none"> <li><b>Why partial?</b> Students evaluate different solutions for reducing atmospheric CO<sub>2</sub> using a design matrix. They do not model of variations in design features may affect the function of each solution.</li> </ul> <p><b>Recommendations</b> – this standard is addressed in full across several other units, notably <i>Contact Forces</i> and <i>Chemical Reactions &amp; Energy</i>. No changes are recommended to address this standard.</p>	Lesson 15

### Additional Standards in *Earth’s Resources & Human Impact*

Standards in unit	Lessons building towards standards
<p><b>8.MS-ESS3-1.</b> Analyze and interpret data to explain that the Earth’s mineral and fossil fuel resources are unevenly distributed as a result of geologic processes.</p>	Lessons 1-5
<p><b>8.MS-ESS3-5.</b> Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century.</p>	Lessons 13-15

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See recommendations below for addressing these 8<sup>th</sup> grade standards.

### Recommendations for Addressing Standards in *Earth's Resources & Human Impact*

**Include, and teach 8.MS-ESS3-1 and 8.MS-ESS3-5 with *Earth's Resources & Human Impact* as planned in the unit.** These standards are integral to the understanding of other standards in the unit. Depending on your students' prior knowledge of these standards, support for students should be adjusted to assist students in examining, analyzing, and interpreting data around the evidence of geologic processes and the impact of human activities. **Excluding these standards would require substantial redesign of the unit, which is not recommended.**

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