The MEC: Your Partner in K-12 Educational Outreach
MEC’s Mission

To identify, produce and disseminate fact-based, K-12 minerals education lessons and activities and to inform and educate the general public about the importance of minerals and mining in their daily lives.
MEC’s Audience

K-12 teachers and students— our primary audience

SME members— providing outreach to their local communities

General public— benefitting from mining and minerals daily
The MEC website is the main way MEC provides resources and information to our audiences.
Finding Resources for your SME Section

These icons are on every page.

There is a Search Box on every page.
There are three audience-focused “funnels”:

1. **Mining & Minerals Information**
2. **K-12 Education Resources**
3. **Outreach & Awareness**

**Finding Resources for your Section**
Finding Resources for your SME Section

On a small or mobile screen, use the small bars to the left of “Menu” to find the three funnels and the Search Box.
Finding Resources for your SME Section

The third is info for SME Members conducting outreach.
Minerals Education Coalition

Outreach and Awareness

You can select this on ANY page.

SME Outreach Resources

Outreach & Awareness
- MEC Events
- MEC News
- Presentation Resources
- Reports & Publications
- Mining in Society Merit Badge

Other Great Resources
- Earth Science Week

SME Members - Get Involved!

Move Mining Next Gen
It's time to vote for your favorite video!
Support Move Mining Next Gen and go online to vote for your favorite video today! You could make one lucky team the winner of the...

What can MEC offer your local SME Section?

MEC News
move mining Next Gen

Other Great Resources

useful links

Reports & Publications

Presentation Resources
SME Outreach Resources: Outreach Ideas

Improving the public perception of mining is essential to the future of our industry. Help SME and the MEC spread the word about the importance of mined minerals in everyday life.

• Attend conferences in your local area.
• Conduct presentations in your local schools.
• Find free and low-cost educational activities and materials for teachers in your community.
• Invite teachers to a meeting and show them part of this slide show.
• Become a BSA Mining in Society merit badge counselor or sponsor MISmb workshops through your company.

https://mineralseducationcoalition.org/sme-outreach-resources/
Minerals Education Coalition

SME Outreach Resources: Outreach Ideas

Each year, MEC and local SME Section members and volunteers provide mineral kits and educational resources to approximately 2000 educators at three National Science Teachers Association regional conferences.

You can participate in the 2019 conferences!
• SLC, UT October 24-26
• Cincinnati, OH November 14-16
• Seattle, WA December 12-14

Contact Tanya Kriss for more information at 303-948-4221 or kriss@smenet.org.
Your Section can apply for **SME Section Grants** to fund up to 80% of specific, one-time projects like:

- Educational outreach material.
- Science, engineering, mining programs at local K-12 schools.
- Collaborative projects with local organizations, such as Boy Scouts and/or Girl Scouts, focusing on science or mining education.
- Career-focused field trips for local students.

Grant proposals are submitted by July 1\(^{st}\) annually, and winners are notified and funded in October. The Section must be willing and able to fund a minimum 20% of their project. Project timeframes are up to 24 months.

[https://mineralseducationcoalition.org/sme-outreach-resources/](https://mineralseducationcoalition.org/sme-outreach-resources/)
SME Outreach Resources: Free Resources

Find resources to introduce MEC outreach materials to other SME Members, Sections and Student Chapters:

• Download K – 12 educational presentations, handouts and tips.

• Use the Mining 101 Presentation to teach about the importance of mining and minerals in everyday life.

• Be sure to use the free MEC resources available on the MEC website—Mining and Minerals Information, K-12 Educational Resources, and more.

https://mineralseducationcoalition.org/sme-outreach-resources/
Mining & Minerals

Find mining and minerals statistics, reclamation examples, minerals database, the Periodic Table and careers information.

Every American Born Will Need...

3.188 million pounds of minerals, metals, and fuels in their lifetime

CalPortland
Sand and gravel mining operations went on in the mid 1950’s at Glacier Sand and Gravel. After reclamation, Chambers Bay Golf Course became home of the 2015 US Open.

Beckman Quarry
Beckman Quarry, San Antonio, TX reclaimed as 6 Flags Amusement Park and La Cantera shopping center.
Minerals Education Coalition

K-12 Education

Educational Resources Database

Weekly Fun Fact: What term describes a fluorescent mineral that continues to fluoresce after the ultraviolet light is turned off?

Education Standards Correlation

MEC News

MEC Store
K-12 Educational Resources Database

Find more than 160 free or low-cost educational materials including teacher guides, activity guides, videos, posters and kits.

Tested by Fire

Everyone loves fireworks and students often wonder how fireworks get their rich colors. Using the flame test, students can produce their own colored flames and learn about fireworks, minerals, and their common elements.

MEC Aggregates Teacher Guide

Get the most out of MEC’s free online educational resources, low-cost supplemental materials, available aggregate teaching resources.

Minerals in your World

Discover the minerals that make up your world, from everyday items like sports balls to natural wonders like gemstones.
K-12 Educational Resources Database

Search this database by **grade level**, **resource** and **topic**, including minerals and commodities (i.e., aggregates, energy, industrial minerals and metals).

**Filters**

- **Grade**: All
- **Resource**: All Lessons/Activities
- **Topic**: All Mining/Processing

- **Copper: More Than Metal**
  Delve into the mining, processing and use of the important metal copper in a 16-page unit.

- **Discovering Diamonds Activity**
  Students will gain a greater understanding of diamond deposits and the rock cycle and diamond mining operations.

- **Molybdenum: Helping to Build a Strong Future**
  Delve into the mining, processing and use of the important metal molybdenum in a 16-page unit.
# K-12 Educational Resources Database

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<thead>
<tr>
<th>Grade</th>
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<td>Teacher Guides</td>
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</tbody>
</table>

**Minerals/Commodities**

- All Minerals/Commodities
- Aggregates
- Energy
- Industrial Minerals
- Metals
- Products/Uses
- Properties

- All Energy
- Coal
- Other
- Uranium
- All Metals
- Copper
- Gold
- Iron/Steel
- Other Metals
- All Industrial Minerals
- Clay/Talc
- Diamonds
- Halite
- Other Industrial Minerals
- Phosphate
- Potash
Find K-12 Educational Resources about AGGREGATES

**February 15**

**Learning Activity: Aggregates Matter**

**Grades K-9**

**Minerals**

- Sand, gravel, and crushed stone are the most mined materials on the planet.

**Lesson Objectives**

- Students will learn about the importance of aggregates in the construction industry.
- Students will be able to explain the properties of different types of aggregates.

**Materials Needed**

- Aggregates samples (sand, gravel, crushed stone)
- Measuring cups
- Tape measure

**Procedure**

1. Introduce the topic by discussing the importance of aggregates in construction.
2. Provide students with samples of different aggregates and have them identify the type.
3. Have students measure the size and weight of each sample.
4. Discuss the properties of the aggregates and how they are used in construction.

**Teaming Up for Environmental Action: Aggregates Activity**

Learn about the aggregate industry and explore problems, concerns, and solutions through a group activity. Activity is from Mining Matters (Canada).

**Everything is Made of Something Poster**

A review of the average American house - the different natural resources that are used to build and furnish a house. Back side has maps of mineral locations in the U.S. 32” x 23”

**Out of the Rock Teacher’s Guide – Book and CD**

Teachers’ guide and CD has more than 90 mining and minerals activities.
Find K-12 Educational Resources about Industrial Minerals

Halite (Salt) SMART Lesson
Explore the mineral halite through an interactive and ready-to-use SMART board lesson. Students will discover how halite is used and how and where it is mined.

Discovering Diamonds Activity
Students will gain a greater understanding of diamond deposits and the rock cycle and diamond mining operations through these materials from Mining Matters (Canada).

Potash Mining Video
Potash is a common name for salts that contain potassium. Potassium (K) is an important element in human and animal health, and a major nutrient for plant growth and crop yield. This 5-minute video from Nutrients for Life discusses the process of creating usable potash for fertilizer through two different mining techniques for extracting and processing potash ore. [516]
Find K-12 Educational Resources about METALS

Nevada Mining Association Virtual Tour
Take a virtual self-guided tour behind-the-scenes of Newmont Mining's Twin Creeks Gold Mine and Mill. View the mine from an overlook, visit the underground mine (1000 feet below the surface), the gold refinery, process lab, emergency refuge chamber and other facilities through narration, 360° images, and videos. The upper left area has symbols for options like a list of the stops on the tour, a map of the tour, and more information about some of the sites on the tour.

Lead SMART Lesson
Explore the mineral lead through an interactive and ready-to-use SMART board lesson. Students will discover why lead is important to everyday life and where lead comes from and how it is mined.

Dig Into Mining: The Story of Copper Activities
Uncover the use of metals such as copper, gold and molybdenum in everyday life and gain a deeper understanding of today's hard rock mining industry. Discovery Education and Freeport-McMoRan have created an interactive program for grades 6-8 that equips educators, students and families with dynamic resources — including a virtual field trip, interactive digital learning tools, and school-to-home connections with career exploration activities.
Find K-12 Educational Resources about ENERGY

Saskatchewan Mining Association
Resources 4 Teachers Grades 6-8
Conduct activities about potash, uranium, coal, gold and modern mining techniques. Activities are from the Saskatchewan Mining Association.

Coal SMART Lesson
Explore coal through an interactive and ready-to-use SMART board lesson. Students will discover how coal is formed, where and how it is mined, how it is converted into electricity, concern for coal miners' safety and how coal mines practice environmental reclamation.

Light Your School Activity
Estimate the cost of lighting your school, as well as kilowatt hours and tons of coal used.

Is It Hot In Here?

SMART, The International Educational Portal from Rio Tinto
Solve math, science and business questions related to real-world operations in the global mining business for copper, coal, iron and uranium.
K-12 Education

Move Mining Next Gen
It's time to vote for your favorite video!
Support Move Mining Next Gen and go online to vote for your favorite video today! You could make one lucky team the winner of the

Educational Resources Database
Weekly Fun Fact: What term describes a fluorescent mineral that continues to fluoresce after the ultraviolet light is turned off?

Education Standards Correlation

MEC News

MEC Store
Natural Resources We Use

Education Resources Database
Teachers are required to teach to specific educational standards. Teachers can search for MEC resources that address the specific national and state educational standards they need to teach, whether the subject is science, language, math, art, social studies, geography, history or economics. This can be a very valuable resource for teachers!

Sample of search results for 6th grade WV

<table>
<thead>
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<th>West Virginia Content Standards and Objectives</th>
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<td>Grade 6</td>
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<tr>
<th>WV.S.6-8.L.</th>
<th>Science Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.6-8.L.2.</td>
<td>Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.</td>
</tr>
<tr>
<td>S.6-8.L.3.</td>
<td>Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.</td>
</tr>
<tr>
<td>S.6-8.L.4.</td>
<td>Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.</td>
</tr>
<tr>
<td>S.6-8.L.5.</td>
<td>Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.</td>
</tr>
</tbody>
</table>

Powered By: EdGate Correlation Services
SME Outreach Resources: MEC Store

SME Members, Sections and Student Chapters can receive bulk discounts on low-cost, supplemental materials from the MEC store.

Bulk pricing extends to select paper posters and activities in the MEC online store. *(Does not include Blue Marble poster, bookmarks, panning supplies, DVDs, and some other items.)*

SME Members/Sections/Student Chapters

- SME Sections and SME Student Chapters will receive the first 100 posters free when ordering posters in bulk (at least 200) at the following rates:

**SME Member bulk rate posters**

- First 100 = Free
- 101 – 200 = 50% off
- 201+ = 75% off

*The SME Member/Section/Student Chapter will pay shipping charges for all ordered posters.*

http://mineralseducationcoalition.org/materials/
SME Outreach Resources: Recognition

There are four MEC Awards recognizing individuals and organizations making meaningful efforts in education about minerals and mining, both within SME and as external partners.

- MEC Leadership Award
- MEC SME Organization Recognition Award
- MEC SME Student Chapter Award
- MEC Partnership Appreciation Award

SME Sections and Section Members have won many of these awards, so be sure to nominate someone who is doing great work in educational outreach!

http://www.smenet.org/membership/awards
Move Mining was created to help change the world’s perception of the mining industry. There are different facets of outreach with this program and ways in which you and your section can participate:

• Submit a concept! Anyone can participate, professionals, students, industry and non-industry. Season 4 opens September 9, 2019.
• Spread the Word! Encourage others to submit their concepts.
• Vote! As submissions come in, vote on your favorite concepts for People’s Choice award.
• Attend the Live Event at the SME Annual Conference and Expo. It is a free, non-ticketed event.
• Go to www.MoveMining.org for more information.
Move Mining Next Gen appeals to students grades K-12. They are challenged to create a three minute video about the importance of mining and minerals in their life. This competition is entirely online, and simply requires a video and parental consent. Winners in different categories receive cash prizes.

• Spread the Word! Encourage teachers and students in your life to create and submit a video.
• Watch and vote! There is a People’s Choice award and it will go to the team with the most votes.
• Go to www.MoveMiningNextGen.org for more information.
SME and MEC support the Mining in Society Merit Badge. How can you make this a part of your outreach?

• Let us know if you are a MiSmb Counselor to be placed on the Counselor Roll call. Become one if you haven’t yet!
• Raise funds for the MEC Scouting Subcommittee, including participation in World Jamboree 2019 and future National Jamborees.
• Volunteer to attend the World Jamboree Summer 2019 at the Summit Bechtel Reserve in West Virginia.
• For more information, contact Charlie Zimmerman at Zimmerman_Charlie@cat.com or Tanya Kriss at kriss@smenet.org.
Take Action Today

Share these outreach resources with your SME Section, Student Chapter or other SME Members to get them involved with local outreach activities.

Contact Tanya Kriss for more information at 303-948-4221 or kriss@smenet.org.
Take Action Today

Follow and share our social media content with others!

http://www.Twitter.com@MECeducation

http://www.Facebook.com/MineralsEducationCoalition

http://www.YouTube.com/user/MineralsInYourLife

http://www.Pinterest.com/MineralsEducationCoalition
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Locate the most recent version of this slideshow here:
http://mineralseducationcoalition.org/sme-outreach-resources