# Minerals Unit Storyline

## Start of Unit

**Unit Challenge:**
Design a smarter smart phone.

## NGSS Standards

<table>
<thead>
<tr>
<th>Lessons</th>
<th>Science Topic</th>
<th>Key Activities</th>
<th>NGSS Focus</th>
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</thead>
<tbody>
<tr>
<td>ESS2-1</td>
<td>Introduction to minerals and smartphones</td>
<td>Take preassessment and consider components of smartphones</td>
<td>ESS2.A Earth’s Materials and Systems</td>
</tr>
<tr>
<td>ESS2-3</td>
<td>A smartphone as a system with subsystems and parts</td>
<td>Identify parts of a smartphone</td>
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<td>Materials in a smartphone</td>
<td>Locate sources of materials on a world map</td>
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</table>

## Student’s Journey

**Students will build an awareness of the use of Earth’s material resources used in smartphones and other technology. They will discover which materials are used and investigate worldwide distribution patterns.**

- **Lessons 1-2**
  - Science Topic: Introduction to minerals and smartphones
  - Key Activities: Take preassessment and consider components of smartphones
  - NGSS Focus: ESS2.A Earth’s Materials and Systems

- **Lessons 3-4**
  - Science Topic: A smartphone as a system with subsystems and parts
  - Key Activities: Identify parts of a smartphone
  - NGSS Focus: ESS2.A Earth’s Materials and Systems

- **Lessons 5-6**
  - Science Topic: Materials in a smartphone
  - Key Activities: Locate sources of materials on a world map
  - NGSS Focus: ESS2.A Earth’s Materials and Systems

**Alfred Wegener and his theory of continental drift will be discussed, and students will uncover evidence to support Wegener’s theory as an explanation for the distribution of minerals. Students will study the Earth processes involved in rock formation.**

- **Lessons 7-9**
  - Science Topic: Continental drift
  - Key Activities: Use scientific reasoning to explore theory of continental drift
  - NGSS Focus: SEP-6 Constructing Explanations

- **Lessons 10-13**
  - Science Topic: Seafloor spreading
  - Key Activities: Make models and discover the locations of minerals
  - NGSS Focus: SEP-7 Engaging in Argument from Evidence

- **Lessons 14-16**
  - Science Topic: The rock cycle
  - Key Activities: Explain the creation of different types of rocks
  - NGSS Focus: CCC-7 Stability and Change

**Students will learn that rocks are made of minerals, which provide clues to the history of the rock. Student teams will use this information to develop pamphlets outlining ideas for how to reduce the environmental impact of smartphones.**

- **Lessons 17-19**
  - Science Topic: The rock cycle
  - Key Activities: Write Rock Cycle stories and generate flowcharts
  - NGSS Focus: SEP-2 Developing and Using Models

- **Lessons 20-25**
  - Science Topic: Sustainable smartphone design
  - Key Activities: Write pamphlet highlighting sustainable smartphone design
  - NGSS Focus: ESS2.A Earth’s Materials and Systems

- **Lesson 26**
  - Science Topic: The effects of science and technology
  - Key Activities: Complete final assessment and reflect on the unit
  - NGSS Focus: ESS2.A Earth’s Materials and Systems

## End of Unit

**Student Outcomes**

- Shared sustainable smartphone pamphlets in a gallery walk
- Improved ability to communicate with others
- Increased understanding of the need for evidence and reasoning to support a claim
- Increased understanding of the effects of science and technology on the environment
- ESS2.A Earth’s Materials and Systems

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