

Lesson Plan

New Uses

Book: *Graphene*

Series: Momentous Materials

Level: Beacon

Objective

To help students practice summarizing and applying details about how scientists use graphene to improve products.

Supplies

- *Graphene* book
- Whiteboard and whiteboard markers
- Paper and pencils

Before the Activity

Read through the *Graphene* book, or assign it to students to read on their own.

Activity

Graphene is sometimes called a “wonder material” because of how many uses it has. It can make things stronger, lighter, or more flexible. It can also conduct electricity. Scientists are exploring how graphene could help improve many types of machines and products. Chapter 4 (“Uses of Graphene”) describes several of these ideas. Ask students to list some of the uses this chapter describes. Write their answers on the whiteboard, using the following sample answers as a guide:

- Graphene could make vehicles faster, stronger, or more efficient.
- It could help computers and electronics stay cool and be more powerful.
- It could make flexible screens for phones or tablets.
- It could help produce renewable energy.
- It could filter pollution out of the air.

Next, have students take out a piece of paper and a pencil. Ask students to imagine they are scientists. They have been hired to add graphene to a machine or product to make it better. Students should choose one of the categories listed on the whiteboard. But the specifics of the idea can be their own.

Each student should draw a picture of their invention. Then, they should write a short explanation (1–3 sentences) explaining how and why graphene makes their product better.

Give students several minutes to think and draw. Then invite a few volunteers to share their ideas with the class.

Evaluation

Collect all the drawings at the end of class and give each student up to 4 points:

- 1 point for matching a category from the whiteboard
- 1 point for explaining where or how they would add graphene
- 1 point for explaining how or why adding graphene would help
- 1 point for including a relevant image

Standards

This lesson may be used to address the Common Core State Standards' reading standards for informational text, grade 4 (RI 4.1, 4.3), and the National Science Education Standards' Content Standard E, grades K–4.