

Strand: <b>8.1</b>	Standard: <b>8.1.6</b>	Episode 4	<b>Big Idea:</b> What happens to atoms during a chemical reaction?
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<b>Title:</b> Modeling the Law of Conservation of Mass	<b>Time:</b> 45 minutes	CCCs: <u>Energy and matter</u>	Practices: <b>Developing and Using Models</b>
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**Episode Snapshot:** In this episode, students will create a **model** demonstrating that in a chemical reaction, matter is conserved, or the same atoms rearrange to form new molecules, following the Law of Conservation of Mass.

### *Gather*

At this point students should have a complete understanding of the Law of Conservation of Mass and how it works with chemical reactions. Students should be able to explain that for a chemical reaction to take place, the bonds between atoms in the reactants are broken, the atoms rearrange, and new bonds between the atoms are formed to make the products. Students should be able to count the number of atoms on the reactants side and on the product side of the chemical equation. They should be able to explain that the equal number of atoms on each side of the equation shows the mass is conserved during a chemical reaction. They should also be able to explain why simply adding more of one reactant will eventually not produce additional products.

Students will now create a model that demonstrates how the Law of Conservation of Mass is followed in a chemical reaction. It is best if the students work on these models as partners or individually so that all students stay engaged in the project.

Provide each student with a [planning sheet](#). The students will select one of the chemical reactions from [this list](#). They may come up with their own reaction to use but should get approval from you first. Try to avoid any reactions that are too simple or too complex.

### *Reason*

Students will come up with materials they can use to represent each of the atoms in their model. They will explain how their model demonstrates the Law of Conservation of Mass. Give students time in class to build their models.

### *Communicate*

When the models are complete, have the students display them in the classroom. Consider having them display their planning form next to their model, or at least a key and description of how it shows the Law of Conservation of Mass.

Students will then critique some of the other models, evaluating how well they demonstrate the Law of Conservation of Mass. The students should also evaluate their own model. You may want to do this in small groups so that the students can hear from other students how their model could be improved.

Allow students to revise their models based on the critiques of the other students.

**Assessment:**

Assess the students on their revised model.  
Determine if they were successfully able to demonstrate the Law of Conservation of Mass.

**Materials, resources, handouts, etc:**

- [List of chemical reactions](#)
- [Model Planning Sheet](#)