

Strand: 8.1	Standard: 8.1.3	Episode 1	Big Idea: Are there predictable patterns in property changes during chemical reactions?
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Title: Phenomenon Burning Paper	Time: 20-30 minutes	CCCs: <u>Patterns</u>	Practices: Plan and conduct an investigation Analyze and interpret the data
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Episode Snapshot:

First the teacher will burn a piece of the paper in front of the students. This phenomenon will then help students generate a list of observations and form questions about how to know when a chemical reaction has occurred.

Gathering: As students enter the classroom present the following question, “What is a chemical reaction?” Have students record their answers in a journal or just on a piece of paper. Give students 2-3 minutes to answer and record. Have students then share their answers with a partner or group. Have them add anything they liked to their paper. Ask or call on several students to share their ideas. This gives you, the teacher, an opportunity to see what your students know and don’t know, bring up the misconceptions. Write the ideas on the board.

Present to the students a piece of paper. Ask the students how you can change the piece of paper. They usually mention things like fold it or tear it first. Do these things that are non chemical changes first and ask the students, “is this a chemical reaction why or why not?” Allow the students to answer. Don’t say yes or no to answers, just let them voice what they think. If the consensus is that this is not a chemical reaction then ask maybe what would be something you could do change it with a chemical reaction. Someone will usually tell you to BURN it. Say okay and then burn the piece of paper. Ask the students while the paper is burning to make as many observations (patterns) as possible and record it on their paper. As well, have them write as many questions about it as possible in reference to how they know it is a chemical reaction.

Reasoning

Once, you have completely burned the paper. Give the students one of the following questions to respond to. “What do you think is happening to the paper?” Give the students 4-5 minutes to respond on their own, then give them time to talk as a group about what they think is happening within a partnership or group.

Communicating

Ask students to talk to their group and come up with what they think a chemical reaction is. Then have the individual students write a 1 sentence definition of what they think a chemical reaction is. Use these as an assessment of the students current understanding.

As a class have a discussion of the burning paper “is this demonstrating a chemical reaction?” Again as a teacher, do not give specific answers to whether it is or not. Explain to students that over the next week students will be investigating and collecting evidence through which they should be able to identify patterns that show a chemical reaction has occurred.

Assessment: Look at the students definitions of what they think a chemical reaction is. This should help teachers understand where their students are in their understanding.	Materials, resources, handouts, etc: - Bunsen Burner or match - Paper - Somewhere for students to respond, write down their questions and their observations.
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