

Strand: 8.1	Standard: 8.1.3	Episode 2	Big Idea: Are there predictable patterns in property changes during chemical reactions?
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Title: Introduction to Chemical Reactions Patterns	Time: 90 mins	CCCs: <u>Patterns</u>	Practices: Plan and conduct an investigation Analyze and interpret the data
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Episode Snapshot:

Students will identify common chemical reactions that they are familiar with. The teacher will fill in with a couple other reactions the students may not have mentioned. Students will **conduct an investigation and analyze the data** to identify patterns in what changes during a chemical reaction.

Students observe, **analyze**, and **interpret** what is happening in each example and what evidence is there to prove chemical reaction has taken place.

At the beginning teachers need to review some lab safety with the experiments.

Gathering

Have students come up with a list of chemical reactions they are familiar with. Add any to the list they didn't come up with that you would like them to look at in order to be sure many of the different signs of chemical changes are covered. Then identify the ones from their list the ones that are safe for them to conduct and that you have the materials for them to do.

Do a mixture of ones they came up with and ones you would like them to explore. If students come up with ones that are too dangerous to run in class you can either eliminate them from the options or look up a youtube video to show them what happens so that they can still see the results. Here is a [list](#) of some ideas of reactions and links to videos of ones you may not be able to do in class.

This lab can be done 1 of 3 ways.

1. Students as a class will select 7-9 of the reactions they want to run (from your approved list of safe reactions that you have supplies for). They will conduct each reaction at stations around the room you will set up. Student groups will rotate around the room.
2. Students as a class will select 7-9 of the reactions (from your approved list of safe reactions that you have supplies for) that they want to run and will conduct each investigation simultaneously as a class. For example if they picked baking soda and vinegar the entire class will do baking soda and vinegar at the same time then move to the next reaction together.
3. Student groups will choose 4-5 reactions they will do from the list (that you have approved) they will conduct them at their own tables and in their own group and then will share with others their results.

Reasoning

When students have completed the reactions and have identified what changes in properties occurred in each reaction have students come up with a list of indicators or signs that are evidence a chemical reaction occurred in each.

Communicating

Students are to revise their definition of a chemical reaction based on what they have learned from the lab. Have students share in discussion how this lab helped them perfect their definition of what happens in a chemical reaction.

Assessment: Students are able to communicate clearly what a chemical reaction is and the patterns (indicators) that a chemical reaction has taken place. This is found on their lab sheet.

Materials, resources, handouts, etc:

- Your own way for students to record findings or [this lab sheet](#)
- [List](#) of possible reactions as a reference for you