



E d u c a t i o n a n d R e s e a r c h : T e s t i n g H y p o t h e s e s

Lesson Plan—Polymers

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Summary

Based on my lab experience, books about polymers and using 3 part cards that I made, everystarisdifferent.blogspot.com this lesson/unit would be given over several days in large groups and individual settings. It is designed for the 4th grade public or private classroom student as part of an introduction to polymers. First, students will be asked what they know about polymers. Second, they will be shown samples of different kinds of polymers including a plastic water bottle, clear plastic wrap, a piece of wood, and an apple. I will explain that all of these contain long chains of chemicals called polymers. Third, using 3 part cards students will be introduced to basic nomenclature of different sizes of polymers. Fourth, using 3 part cards with pictures of different number of linked balls on them, the students will match the correct picture with the name of the length of the polymer. The 3 part polymer cards will help the student with their matching skills, as well as name recognition, and reading. The matching exercise allows the student to understand that there are many different names for the different lengths of polymers.

Key Concepts

- Lengths of polymers
- Using 3 part cards to match polymer sizes to polymer length names

Objectives

Students will be able to:

- Identify a polymer, an oligomer, decamer, nonamer... monomer..
- Match different polymer sizes from their picture and their name

Materials

- Examples of things made of polymers: plastic water bottle, clear plastic wrap, a piece of wood, and an apple.
- 3 Part Polymer Cards (12 sets of cards – 12 control, 12 picture and 12 label cards)

Procedure

1. In this presentation the control cards are laid out first, then the picture-only cards are matched to the control cards, and then the labels are matched with the pictures. It is okay if the difficulty of some of the words is a little advanced for the child if the objects are familiar to the child.
2. Carry the tray to a mat. Place it in the upper right corner.
3. Remove all of the control cards (the cards with the pictures and labels) and line them up along the left side of the mat. If there are a large number of cards, use two columns.
4. Take the top picture card and compare it to the first control card. If it matches, leave the card there. If not, continue comparing it to the other control cards until a match is found.
5. Continue in this way with the rest of the picture cards until they have all been matched.
6. Take the top label card and compare it to the first control card. If it matches, leave the card there. If not, continue comparing it to the other control cards until a match is found.
7. Continue in this way with the rest of the label cards until they have all been matched.

Variation A – group of 12 children, Movement activity (perhaps use the gym)

1. Give each child 1 Picture card in their right hand and 1 different Control card in their left hand.
2. Ask children to form a circle so that they stand next to each match Left next to right.

Variation B – small group 3-4 players at a low table or on a small rug on the floor.

1. Memory Game 1 - Lay out all the Picture cards and Control cards upside down. Let children take turns flipping over cards to find matches.
2. Memory Game 2 (harder)– Lay out all the Label cards and Control cards upside down. Let children take turns flipping over cards to find matches.
3. Memory Game 3 (hardest) – Lay out all the Label cards and Picture cards upside down. Let children take turns flipping over cards to find matches.

Assessment

- Using Picture cards and Label cards, the student will be able to identify a size name of polymers with 80% accuracy.
- Using pictures the students will be able to match and label the different types of sharks with 100% accuracy.

- More advanced students can draw pictures of different sharks and label them producing their own shark book to take home.

Additional Resources

<http://everystarisdifferent.blogspot.com>

<http://www.attheworks.org/files/documents/Polymer%20Lesson%20Plan%204th%20grade.pdf>