Dan, Amy, Marlene, Jess Count the Many Styling’ Possibilities

**Discrete Math: 6th Grade**

**MN Standard:** 5.4.1.2 Create and analyze double-bar graphs and line graphs by applying understanding of whole numbers, fractions and decimals. Know how to create spreadsheet tables and graphs to display data**.**

**Objective:**

 In this lesson, the students will use lists and/or tree diagrams to generate and record all possible outcomes or choices of a set of objects

The students will use their prior knowledge of combinations and lists, to learn the concept of tree diagrams.

 The students will understand the relationships among arrays, and systematic lists.

**Equipment/Materials Needed:**

 Paper and pencils

One set of two sided shirts (4), two sided shorts (1), two sided pants (2)

Chalk board with chalk or white boards with markers

**Launch:**

I am going on a trip. I have to pack efficiently. Can you help? Each of your groups will be given a suitcase. Inside the suitcase is a variety of clothes. How many outfits can Jess make from the clothes she has packed?

 I want you to work the problem and be ready to explain what you did. Make sure you find all of the outfits. (Do not give a lot of help at first. You want to see whether the students are organized in their thinking.) Have them share the way they worked the problem by drawing it on the board.

Did they draw a picture, make a list, make a table, etc. Did they just randomly choose pants and shirts?

The answers are the same; just the order is different.

**Summarize:** Have one student summarize today’s lesson. Making lists and drawing diagrams can help students organize their thinking.

**Apply:**

Bonus Question: Danny’s family is buying a car. They can get a two-door or a four door car. They are looking at black, red, or white cars. How many choices does Danny’s family have and what are the choices?

Bonus Question: The lunchroom serves sandwiches. You can get ham, tuna, or egg salad. You can choose white or wheat bread. How many choices of sandwiches are offered and what are the choices?