

Lesson Planning Template *

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<p>Identify the mathematical goals of the lesson, both short term and long term.</p> <p>*Probability 3.18</p> <p>-clothes combinations</p> <p>-show using: picture, numbers, words</p>	<p>Short Term Goal: Being able to create all possible combinations (in an organized way) Vocabulary: data, investigate, combinations, probability</p> <p>Long Term Goal: this will begin the foundation for future math skills; percentages, fractions, factor trees (tree diagrams), finding multiples of numbers prime factorization. (multiplication, repeated addition).</p>
<p>Identify the ways in which the task can be solved.</p> <ul style="list-style-type: none"> • Which of these methods do you think your students will use? • What misconceptions might students encounter? • What errors might a student make? <p>Combinations-</p> <p>*How many outfits can you make?</p> <p>Hats (extension)</p> <p>Shirts</p> <p>Pants</p> <p>Scarves (extension)</p> <p>-Keeping track, organizing the information</p>	<p>*Read Aloud Flat Stanley Book (strikeout, not needed, addressed prior knowledge of Flat Stanley with class).</p> <p>*Prior Knowledge of Flat Stanley Book</p> <p>*Use prop of wooden (3 1/2 ft.) Stanley and small suitcase with clothes inside to show different outfits.</p> <p>High Ability Level: Once they've proved the original problem—give them additional hats, ties, to see if their pattern of combinations is always true. Multiplication used, repeated addition used as possible outcomes.</p> <p>Average Ability Level: Outcome would be they use repeated addition</p> <p>Below Average Ability Level: Outcome would be they needed to physically manipulate and see each outfit or combination.</p> <p>(Photos of Possible Student Solutions Attached at end of plan)</p> <p>Unorganized Material and random combinations Colors DO NOT have to match, you can only use an article of clothing 1x, no</p>

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	knowing when you're finished (or reached a solution).
<p>Launch: How will you introduce students to the task so as not to reduce the problem solving aspects of the task(s)?</p> <p>What will you hear that lets you know students understand the task(s)?</p>	<p>Flat Stanley is going on vacation. He packed 4 different colored pants and 3 different colored shirts (teacher held up manipulatives). How many different outfit combinations can he make using those clothes?</p> <p>The colors don't have to match.</p> <p>(The lesson will be open ended)</p> <p>We anticipate hearing:</p> <p><u>High Ability Level:</u> Multiplying the pants x shirts and quickly have the answer.</p> <p><u>Average Ability Level:</u> They will be manipulating each outfit and writing/drawing as they go.</p> <p><u>Below Average Ability Level:</u> They may make 3 outfits quickly and then discuss that there is 1 extra pair of pants left over.</p>

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Explore: As students are working independently or in small groups:

- What questions will you ask to focus their thinking?
- What will you see or hear that lets you know how students are thinking about the mathematical ideas?
- What questions will you ask to assess students' understanding of key mathematical ideas, problem solving strategies, or their representations?
- What questions will you ask to advance students' understanding of the mathematical ideas?
- What questions will you ask to encourage students to share their thinking with others or to assess their understanding of their peers' ideas?

Change size of groups to pairs still homogeneously (matched ability).

Questions Continued:

Do you think there's an easier way?

Can you explain your answer or findings with numbers?

How can you organize this information?

Teacher will be saying:

High Ability Level: (strikeout ability levels and make a complete list of Questions).

Now how many combinations or outfits can you make with 4 hats? (extreme extras to add on will be ties)

Continue to record your findings.

Do you see a pattern?

Average Ability Level:

Do you see a pattern?

Give 2 hats and ask...

Now how many combinations can you make with 2 hats?

Record your findings.

Below Average Ability Level:

Can you make any other combinations?

Could he wear something else with the green pants?

Are there any other combinations or outfits you can make?

Remember to record your findings. This will help you keep track of the outfits you already made.

They'll be manipulating the clothes, making combinations and drawing the outfits.

Do you see patterns? Can you **prove** your answer?

How can you prove it?

Adding hats and/or ties to come up with all possible combinations, would your strategies work for other combinations? **(note: extension)**

Ex.) ice cream, different toppings, cup or cone.

Explain your idea with your group.

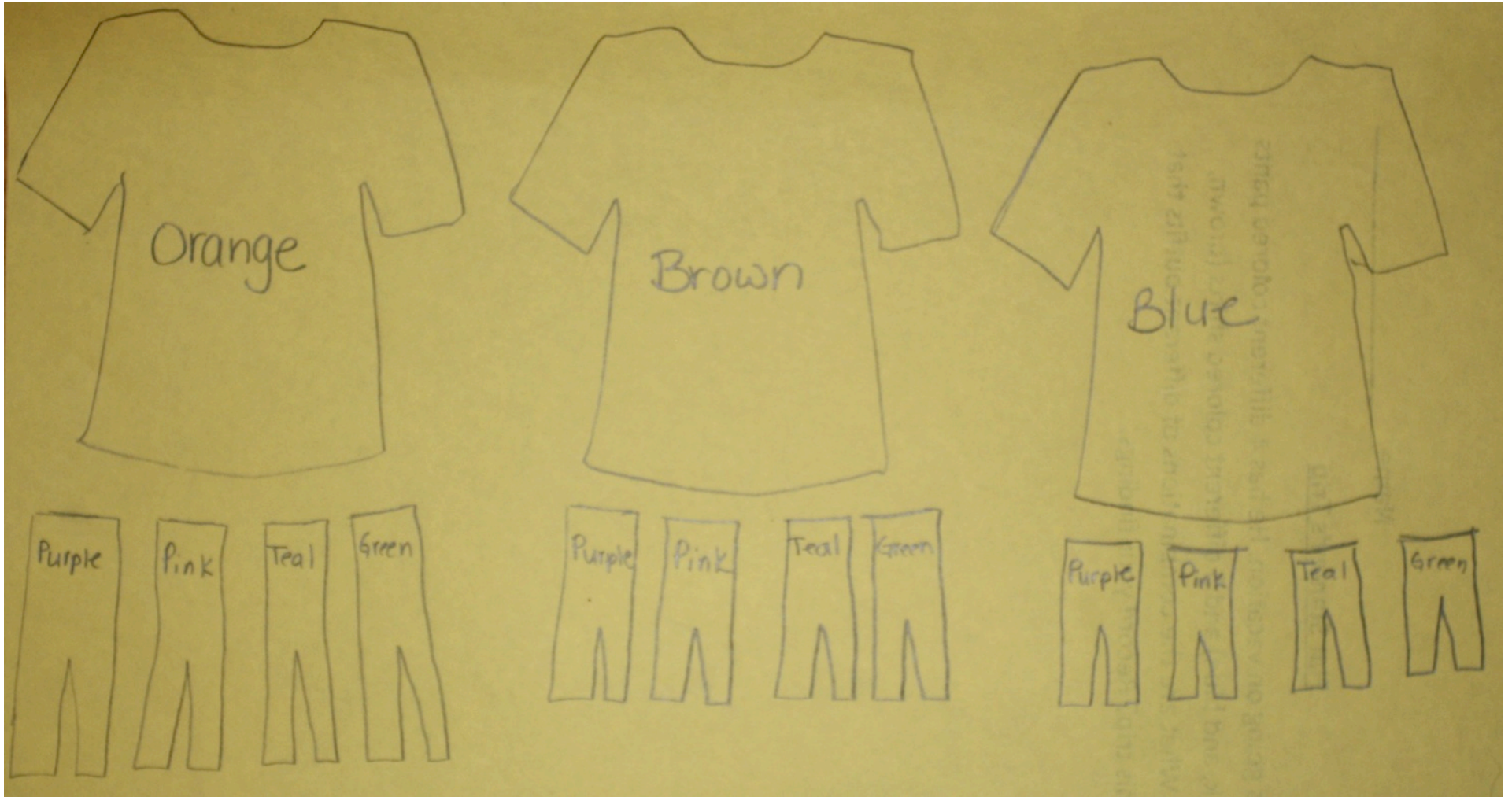
Can you show the group your findings of all of the combinations with the green pants?

Possibly just use shirts/pants even for extending

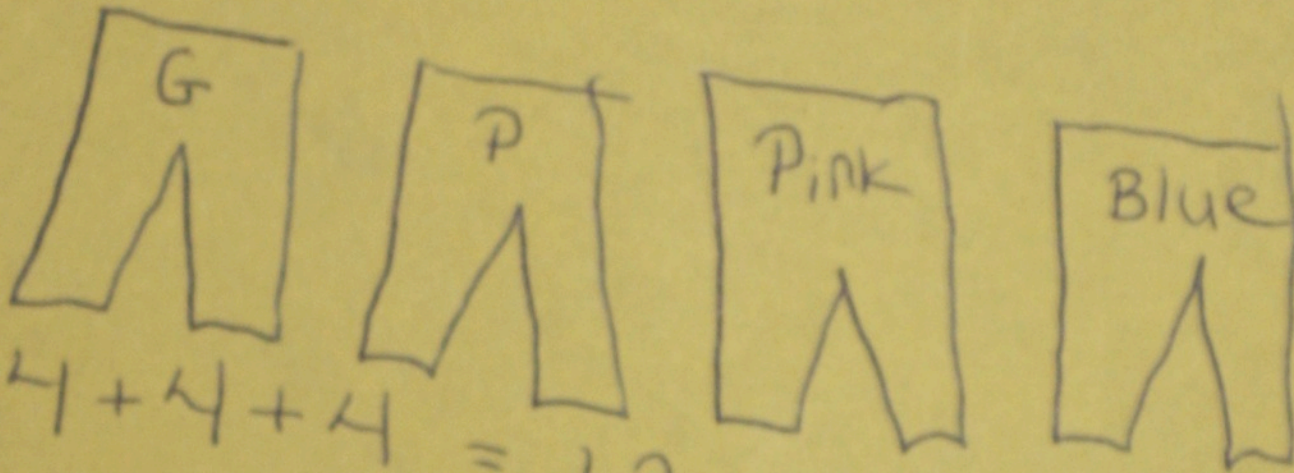
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<p>Which solution paths do you anticipate will come up and which do you want to have shared during the class discussion in order to accomplish the goals for the lesson?</p> <ul style="list-style-type: none">• Which will be shared first, second, etc.? Why?• In what ways will the order of the solution paths helps students make connections between the strategies and mathematical ideas?	<p>1st choice=to manipulate the clothes to show combinations on large post it. 2nd choice=shows the repeated addition 3rd choice=show the multiplication</p> <p>Simplistic thinking (concrete thinking) to higher level thinking (more inquiry based).</p> <p>With more time, we would've wanted to discuss the combinations and how they were made, 12 outfits, How many outfits could Flat Stanley bring with him? These were the different ways we can show it? Ask kids what did they learn? Kids' reflection? What would you do differently tomorrow if we had a similar problem? Does anyone see an idea and/or strategy that you would like to try next time that you didn't think of this time?</p> <p>Where are the 3 in $3+3+3+3$? Which 3 are we talking about? Can they make connections across?</p> <p>More time for closure!</p>
<p>What will you see or hear that lets you know that students in the class understand the mathematical ideas of problem solving strategies that are being shared?</p>	<p>We see the students make combinations and show the combinations. We will hear students talk out the repeated addition ("this combination will be 4, then this pant can go with these and that's another 4"...etc.). 4 Pants will make 12- thus the total combination possibilities. Multiplication applied.</p>

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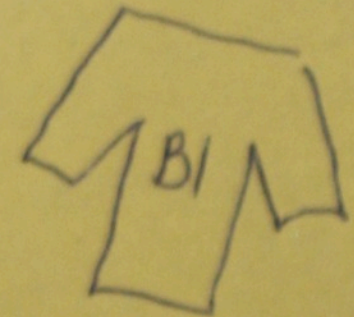
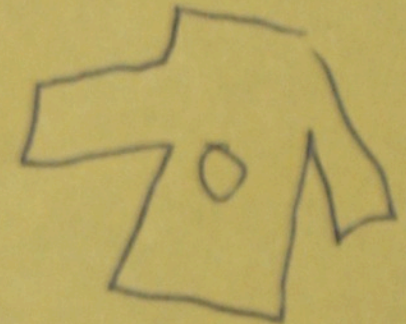
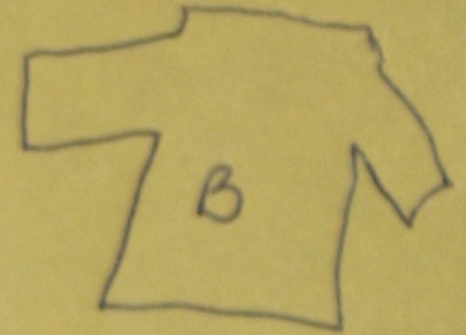


$$4 + 4 + 4 = 12$$

4 pants

x 3 shirts

12 outfits



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Name _____

Flat Stanley's Trip

Flat Stanley is going on vacation. He has 4 different colored pants (green, purple, pink, and blue) and 3 different colored shirts (brown, orange, and blue). What are the combinations of different outfits that he could wear on his trip? Record your findings.

green pants / brown shirt
green pants / orange shirt
green pants / blue shirt

purple pants / brown shirt
purple pants / orange shirt
purple pants / blue shirt

pink pants / brown shirt
pink pants / orange shirt
pink pants / blue shirt

blue pants / brown shirt
blue pants / orange shirt
blue pants / blue shirt

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