Educational Leadership Observation

N. Kristina Leyva, Ed. S.

April 30, 2018

PEDU 671

Pre-Conference

PRE-OBSERVATION CONFERENCE WORKSHEET

NAME: Teacher A SCHOOL: Spratley Gifted Center

DEPARTMENT/GRADE: Math/6th & 7th DATE: 4/13/2018

1. Describe the class. Include specific needs of students, differentiated instructional strategies that may be used to meet these needs, and special conditions that may exist. (1b – Knowledge of Students, 1c – Selecting Instructional Goals, 1e – Designing Coherent Instruction)

The class size consist of 22 racially and socially economic diverse of sixth and seventh graders who are low performing (by gifted standards) in math. There are three children with IEPs, and six who are currently failing the course. The instructional goal is to competently compute a probability and statistics using the Fundamental (Basic) Counting Principal (FBCP). Students are fairly competent in this arena; therefore instruction will be differentiated using a mix of whole group/group work instruction.

2. Describe the goals of the lesson and how these goals relate to curriculum and

standards. (1b – Knowledge of Students, 1c – Selecting Instructional Goals, 1e – Designing Coherent Instruction)

The goal of the lesson is to ensure that students understand how to determine probability and understand statistics using the FBCP. This is in alignment with the spiraling of curriculum in preparation for the upcoming SOL and meets the requirements of standards 7.10, which states that the student will be able to determine the probability of compound events using the FBCP.

3. How is this lesson connected to students’ prior knowledge and how will this lesson be connected to lessons that follow? (1a- Knowledge of content and pedagogy, 1c – Selecting Instructional Goals and 1e – Designing Coherent Instruction)

This standard was taught during the second quarter and had continuously been used throughout the curriculum of this course. It has been connected throughout the school year and will continue to be an emphasized understanding throughout their academic careers.

4. How will students be actively engaged in the lesson? (1e – Designing Coherent Instruction)

The lesson will contain an interactive vocabulary task, followed by whole group instruction, leading into a group activity, ending with journaling.

5. What materials and resources will be used in the lesson? (1d-Knowledge of Resources)

The lesson requires the use of chart paper, markers, a copy of the lesson activity sheet (Appendix A), and calculators.

1. How will you assess what students have learned/understood? (1f – Assessing Student Learning)

Students will complete a journal entry about the lesson answering two given prompts.

1. What support activities or assignments, if any, have you planned based on this lesson? (1b – Knowledge of Students, 1e – Designing Coherent Instruction)

Currently, there are none planned.

Unannounced Observation # 1

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| --- | --- | --- | --- | --- |
| What: Observation 1 | | | How: Unannounced | |
| Who: N. Kristina Leyva, Ed. S. | | | | |
| Focus Elements | Structured lesson, high expectations | | | |
| Observation Details | | | | |
| Date: 4/16/2018 | | | Time: Start: 10:50 AM End: 10:55 AM | |
| Content Topic/Lesson Objective | | | The student will be able to describe mean as balance point; and (b) decide which measure of center is appropriate for a given purpose | |
| Whole Group | Small Group | | One-on-One | Independent |
| Evidence | | | | |
| Structured Lesson | | | High Expectations | |
| Teacher A was reviewing warm-up with students over determining dependent and independent variables. | | | Teacher A placed focus on students not completing the warm up, repeating classroom expectations and referring students to the Spratley Behavior Matrix for guidance. | |
| Safe Learning Environment | | | Adjustments to Practice | |
|  | | |  | |
| Meeting Diverse Needs | | | Student Engagement | |
|  | | |  | |
| Focused Feedback | | | | |
| Reinforcement Area: | | Teacher A’s instructions on the warm-up and explanation process were clear and easy to follow. | | |
| Refinement Area: | | The learning intention could be formatted in more student friendly language. | | |

Announced Observation #2

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| --- | --- | --- | --- | --- |
| What: Observation 2 | | | How: Announced | |
| Who: N. Kristina Leyva, Ed. S | | | | |
| Focus Elements | Meeting diverse need, student engagement | | | |
| Observation Details | | | | |
| Date: 4/17/2018 | | | Time: Start: 11:20 AM End: 11:25 AM | |
| Content Topic/Lesson Objective | | | The student will be able to compare and contrast dependent and independent events; and (b) determine probabilities for dependent and independent events. | |
| Whole Group | Small Group | | One-on-One | Independent |
| Evidence | | | | |
| Structured Lesson | | | High Expectations | |
|  | | |  | |
| Safe Learning Environment | | | Adjustments to Practice | |
|  | | |  | |
| Meeting Diverse Needs | | | Student Engagement | |
| Students were working in cooperative groups completing math stations on probability, each station with a different manipulative. | | | Students were fully engaged in the math stations, debating the outcomes and probabilities for each station. | |
| Focused Feedback | | | | |
| Reinforcement Area: | | Teacher A was actively involved in the learning process, moving from group to group asking HOTS type questions to reinforce the learning. | | |
| Refinement Area: | | There was much activity will little restraint, may want to review the Spratley Behavior Matrix prior to and during activity. | | |

Unannounced Observation #3

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| --- | --- | --- | --- | --- |
| What: Observation 3 | | | How: Unannounced 3 | |
| Who: N. Kristina Leyva, Ed. S | | | | |
| Focus Elements | Safe learning environments; adjustments to practice | | | |
| Observation Details | | | | |
| Date: 4/18/2018 | | | Time: Start: 11:55 AM End: 12:00 PM | |
| Content Topic/Lesson Objective | | | The student will be able to compare and contrast dependent and independent events; and (b) determine probabilities for dependent and independent events. | |
| Whole Group | Small Group | | One-on-One | Independent |
| Evidence | | | | |
| Structured Lesson | | | High Expectations | |
|  | | |  | |
| Safe Learning Environment | | | Adjustments to Practice | |
| The aisles were clear of debris and trash; no furniture impeded travel. Students were talking quietly about the prompt, no apparent bullying taking place. The teacher was helping a student collect their thoughts on the journal entry, mutual respect was show between both teacher and the student. | | | The journal entry is a new practice discussed between Teacher A and my self. She has taken the recommendation and made it part of lesson practices. | |
| Meeting Diverse Needs | | | Student Engagement | |
|  | | | . | |
| Focused Feedback | | | | |
| Reinforcement Area: | | Teacher A seems to have been able to implement the written component into her lessons seamlessly. | | |
| Refinement Area: | | The Learning Intention could have been written in more student friendly language. | | |

Full Observation

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| --- | --- | --- | --- |
| Name: Teacher A | Date: 4/23/2018 | | Grade: 6 & 7 |
| Beginning Time: 10:45 AM | End Time: 12:10 PM | | Rank: P1 |
| Professional Knowledge | | | |
| The teacher demonstrates an understanding of the curriculum, subject content, and the developmental needs of students by providing relevant learning experiences | | | |
| Examples of work conducted in the performance of the standard. | | Evidence collected for this standard. | |
| The teacher effectively addresses appropriate curriculum standards. | | 10:46 Teacher A demonstrated professional knowledge as she explained the learning intention and the success criteria to the class and how understanding probability and statistics is a lifelong skill they will use in business and in life. | |
| Teacher demonstrates an ability to link present content with past and future learning experiences, other subject areas, and real world experiences and applications. | | 10:48 Teacher demonstrated professional knowledge by referring back to previous lessons and the vocabulary they covered and explaining how the vocabulary is a key component in the day’s lesson and will be useful in high school/college as they learn statistics. | |
| Teacher demonstrates an accurate knowledge of the subject matter. | | 11:00: Teacher A “Let’s say you are buy a new car and the car you want has two different body styles, designed in three different models, and comes in five different colors. You would create a tree diagram to determine the exact number of choices you have total when it comes to selecting your car. Why? Because mXn are ways of doing both, correct?” | |
| Teacher communicates clearly and checks for understanding. | | 11:05 Teacher A, “Zander, how would your selection change if you were told that you can not have the black hatchback? How would that change your outcomes?” | |
| Name: Teacher A | Date: 4/23/2018 | | Grade: 6 & 7 |
| Beginning Time: 10: 45 AM | End Time: 12:10 PM | | Rank: P1 |
| Instructional Planning | | | |
| The teacher uses the Virginia Standards of Learning, the school’s curriculum, effective strategies, resources, and data to meet the needs of all students. | | | |
| Examples of work conducted in the performance of the standard. | | Evidence collected for this standard. | |
| Aligns instruction with Standards of Learning (SOL), VDOE Curriculum Framework, and HCS Curriculum and Learning Plans in both content and cognitive level. | | 10:45 Teacher A provided her lesson plan as requested. She aligned her instruction with math SOL 7.10, “The student will determine the probability of compound events using the Fundamental (Basic) Counting Principal. Her Learning Intention was clearly visible on the board, “You will demonstrate an understanding of computing probability and statistics and how to use the Fundamental (Basic) Counting Principal by using a food menu to calculate the possible number of meals available at a restaurant.” Her Success Criteria stated, “I will know I have it when I have when I can describe the connections made between the Fundamental (Basic) Counting Principals and can explain the FBCP to someone who has never heard of it.” | |
| Plans time realistically for pacing, content mastery, and transitions. | | 10: 45 Teacher A communicated to students “There are several activities to get today, so we will use the timer to ensure we stay on track and complete the lesson. Do we understand?” | |
| Develops student learning intention that are easy to understand and explained by students. | | 10:47 Teacher A ensured that students fully understood the learning intention by asking the class to restate the learning intention and explain its meaning by telling her what their goal was for this lesson. | |
| Selects an appropriate sequence of activities to meet the diverse needs of all learners. | | Throughout the lesson Teacher A used the Promethean Board for a vocabulary card sort, put students in small groups to work out problems, and had students complete a journal entry on the lesson. | |
| Defines goals that reflect high expectations. | | 10:55 Teacher A reminded students of classroom expectations and the goal of the day’s lesson “The learning intention is to determine the number of possible outcomes using FGCP. Let’s keep that in mind.” | |
| Includes in lesson plan specific questions that will meet and challenge student on a higher cognitive level. | | 11:00 throughout the lesson, Teacher asked high cognitive thinking questions:   * What do you need to compute this? * What strategies are you going to use? * How would you tackle similar problems? * How did creating the tree diagram help you come to this conclusion? * Could you create a similar problem using this data and strategy? | |
| Selects, acquires, or creates appropriate and current resources to promote cognitive and developmental growth. | | Teacher used a lesson from the HCS CIA vault, created by the curriculum. | |
| Identifies opportunities to provide formal and informal feedback to students and parents. | | 11:10 As teacher circulated the room, from table to table, she assisted students on their given scenario and asked high order thinking questions. | |
| Name: Teacher A | Date: 4/23/2018 | | Grade: 6 & 7 |
| Beginning Time: 10:45 AM | End Time: 12:10 PM | | Rank: P1 |
| Instructional Delivery | | | |
| The teacher effectively engages students in learning by using a variety of instructional strategies in order to meet the individual learning needs of all students. | | | |
| Examples of work conducted in the performance of the standard. | | Evidence collected for this standard. | |
| The teacher engages and maintains students in active learning. | | 10:50 Teacher A introduced the vocabulary card sort, explaining to students they would match the term to the vocabulary in their groups, then come to board to match them on the board. | |
| The teacher builds upon students’ existing knowledge and skills. | | 11:00 Teacher A reviewed the concepts with the classroom, reminding students of steps needed to compute probability from previous lessons. | |
| The teacher differentiates instruction to meet the students’ needs. | | Teacher A’s lesson incorporated technology, a small group activity, and a journal assessment. | |
| The teacher communicates clearly and checks for understanding. | | Teacher A was articulate and clear when explaining instructions, asked for any further explanations, and clarified any misunderstanding. | |
| Name: Teacher A | Date: 4/23/2018 | | Grade: 6 & 7 |
| Beginning Time: 10:45 AM | End Time: 12:10 PM | | Rank: P1 |
| Assessment of and for Student Learning | | | |
| The teacher systematically gathers, analyzes, and uses all relevant data to measure student academic progress, guide instructional content and delivery methods, and provides timely feedback to both students and parents throughout the year. | | | |
| Examples of work conducted in the performance of the standard. | | Evidence collected for this standard. | |
| Aligns student assessment with established curriculum standards and benchmarks. | | 11:45 Journal/Writing Prompts  \*Describe what connections can be made between the Fundamental (Basic) Counting Principle and tree diagrams.  \*Explain the Fundamental (Basic) Counting Principle to someone who has never heard of it. | |
| Uses a variety of assessment strategies and instruments that are valid and appropriate for the content focus and student population. | | Vocabulary sort, HOTS question, journal entry. | |
| Aligns student assessments with the established curriculum standards and intended objectives. | | Cognitive questioning and journal entry aligned with the curriculum and taught standard. | |
| Provides opportunities for students to demonstrate understanding or skill through real world application. | | 11:25 Teacher A called each group to the Promethean board with their scenario, as a group, they explained their scenario and the mathematical processes they used to reach their answers. | |
| Uses multiple levels of question and open-ended performance assessments to encourage higher order thinking. | | 11:00 throughout the lesson, Teacher asked high cognitive thinking questions:   * What do you need to compute this? * What strategies are you going to use? * How would you tackle similar problems? * How did creating the tree diagram help you come to this conclusion?   Could you create a similar problem using this data and strategy?  Used PBELL journaling to increase the use of academic language and vocabulary. | |
| Gives construction, frequent, timely, and specific feedback to students on their learning. | | 11:30 Teacher A, “Excellent work on this problem. Can you see how you would use statistics and probability in real life?” | |
| Use technology to offer students interactive and authentic opportunities to demonstrate understanding. | | 11:25 Teacher A called each group to the Promethean board with their scenario, as a group, they explained their scenario and the mathematical processes they used to reach their answers. | |
| Name: Teacher A | Date: 4/23/2018 | | Grade: 6 & 7 |
| Beginning Time: 10:45 AM | End Time: 12:10 PM | | Rank: P1 |
| Learning Environment | | | |
| The teacher uses resources, routines, and procedures to provide a respectful, positive, safe, and student-centered environment that is conducive to learning | | | |
| Examples of work conducted in the performance of the standard. | | Evidence collected for this standard. | |
| Arranges the classroom to maximize learning while providing a safe environment. | | Teacher A using tables instead of desks to maximize the use of group work and allow space for movement. | |
| Establishes clear expectations, with student input, for classroom rules and procedures early in the year, and enforces them consistently and fairly. | | 11:30 Teacher A referred a student back to the Spratley Behavior Matrix for classroom expectations when learning and working. | |
| Maximizes instructional time and minimizes disruptions. | | Teacher A transitioned smoothly from one activity to another with very little down time between activities. | |
| Establishes a climate of trust and teamwork by being fair, caring, respectful, and enthusiastic. | | 11:10 Teacher A to group, “Okay, so tell me where you are having problems. What do your notes tell you to do? Okay, so go with that and see what the outcome it.” | |

Post Conference Meeting

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| What: Post Conference | | | How: Announced |
| Who: N. Kristina Leyva, Ed. S. | | | |
| Focus Elements | Follow Up to Observation | | |
| Observation Details | | | |
| Date: 4/25/2018 | | | Time: Start: 11:00 AM End: 11:30 AM |
| Conference Questions | | | |
| Question | | | Response |
| How did you feel about the lesson? | | | Teacher A: I feel that it went really well. It was a concept that we had covered previously and reviewed a few times. The kids really seem to grasp the concept. I think they really enjoyed the activities and the group work.  Me: Yes, for the most part the students were really engaged and on task. They seemed to enjoy the lesson.  Teacher A: Yeah, it was one of the most interactive lessons I’ve taught this year. I was a big nervous, but little by little I became more comfortable.  Me: Why nervous?  Teacher A: I’m a bit of a control freak. I don’t like chaos or feeling as if things are running away from me. Setting the kids free to work together throughout much of the class is a bit out of my comfort zone, but I can see a difference in their energy , engagement, and learning efforts. |
| What do you think your strengths were during this lesson? How can you build upon them? | | | Teacher A: I know I have a grasp on the material. I can build upon that by finding ways to make the material relevant and intriguing to the kids just as it is to me. I love math, and I want to find ways to help the kids develop a love for it as well.  Me: Can you think of ways you can do that? How can you translate your passion for math to your students?  Teacher A: I think I need to work more on my delivery. I know I can come across as bland. I’ve had kids tell me I sound very monotone, “but we learn miss!” (laughter). I have to find new energy to demonstrate my passion and make it infectious for the students. |
| Where do you think you could have improved on this particular lesson? | | | Teacher A: I think that timing is a real issue for me. I have to find ways to transition more smoothly from one event to another. I’m still learning how to use my 90 minutes effectively. I think you helped me understand the importance of transition and keeping the students engaged. Now, I have to work on transitioning from one activity to the next with as little down time as possible.  Me: Might I suggest the use of a timer or hand signal that identifies it is time to shift gears?  Teacher A: The timer is good, although I’d probably go crazy with the constant ringing. I like the hand gesture idea. I might consider that. |
| How did you feel about student responses during this class? | | | Teacher A: I felt proud! They were really into solving the scenarios and finding the various numbers of probabilities. I was even surprised by some of the problems they came up with themselves. They were quite good.  Me: And they seemed to enjoy teaching on the board to the class.  Teacher A: Yes, they were very excited about that. |
| Tell me about some of the behaviors you had to correct. | | | Teacher A: I have a few tricksters I have to keep eyes on. They tend to get off task and get otherwise engaged.  Me: Do you currently have a seating chart?  Teacher A: No, I let them select their own seats.  Me: I noticed you didn’t create the groups either. Why not?  Teacher A: I like control, but I felt that was something I could give way too. Should I create a chart or work groups?  Me: Do you think it would keep certain personalities inline if you did?  Teacher A: Well, they do tend to gravitate toward each other. If I set some boundaries that kept them away from one another, it definitely could only help. How do you create groupings?  Me: Normally you would match higher-level students with lower level students to help increase peer teaching. Or could do a personality match. Or, just random to keep the peace! But if you create a seating chart that puts them in the groups you want them to be in, it will create less fuss and distraction when you set to task at their tables, as they are already grouped.  Teacher A: Okay. That is something to consider. |
| Tell me how you feel about the implementation of the instructional practices we previously discussed. | | | Teacher A: I wasn’t really sure what I was expecting when we started this. However, I feel like you have truly mentored me over these past few weeks. Using the technology to engage students and increase their learning has been fun. Youtube is a wonderful thing! You’ve helped me find some truly engaging activities to increase relevant and engagement, and the kids have benefitted from that. Even the journalling, which I was skeptical of has proven to be beneficial. I’ve found some really great explanations and comments in the journals about the learning and lessons. I feel that I have made some serious strides to becoming a gifted teacher.  Me: And what about assessments? Have you seen improvements there?  Teacher A: Yes! This last CSA my Honors Course and Pre-Algebra scores rose significantly. I see growth in my students. It’s amazing.  Me: Is there anything else you would like for me to do to help you?  Teacher A: I realize I was class project, but, could you continue to check in with me and help me out next year? I think year two is going to be a lot better, and if I have you to bounce ideas off of, I know it can be.  Me: Well, I’m honored. And of course! |
| Focused Feedback | | | |
| Reinforcement Area: | | Teacher A raised the engagement level in her classes. She has taken on all the suggested strategies concerning technology, the implementation of more group activities, and using a modified version of the PBELL learning model. She seems more confident in her teaching and happier with how her classes are running. | |
| Refinement Area: | | Teacher A needs to create a seating chart to keep personalities from mixing and distracting the learning environment. I would even suggest some professional development in classroom management to assist her. She needs to find a way, either via a timer, some sort of hand signal, or other concept to help her students understand transitions and to make the transitions as smooth as possible. Lastly, she may want to research classroom delivery styles and find a way to help her passion for her content come across to her students so that they can connect on a personal level with the material. | |

Summary

Teacher A has approached this project with the conscientious objective to improve upon her performance as a first year math teacher. In previous discussion she openly admitted that while she was confident in her knowledge of her content, she knew her lesson planning and instructional methods needed improvement. Over the time of this course, we have discussed improving her instructional delivery using the PBELL instructional model, which emphasizes the use of academic language through designed activities that stress vocabulary and writing. I observed Teacher A first use this technique in my third observation of her class, where students were journaling about what they learned and how they would apply it in life. She also used this technique in the vocabulary card sort during my observation and again, assessing students through journal writing. During our feedback conference she admitted she wasn’t sure how the PBELL method would work, but she was impressed by how her students had embraced it and she had learned much about her students’ learning through their entries.

Teacher A also increased the use of technology in her classroom by using her Promethean board for more than just delivering the lesson. She has used YouTube to learn how to create activities to enhance her lessons and it has demonstrated itself useful. She has also begun to allow students to teach more from the Promethean with her as a facilitator. Teacher A indicated that the students seem truly enjoy the interactive part of this instructional tool.

In addition, Teacher A has learned to seek out more engaging activities for her students. She admits to having something of a controlling demeanor and letting the students engage more has been hard for her, but she sees the results of allowing more group work and interaction from her students. She admits she has seen growth in student assessments and knows she is on track towards becoming a better teacher.

In terms of improvement, Teacher A feels she needs to find a way to demonstrate her passion for her content to her students. She admits to being a bit monotone in delivery and she desires to improve upon that. She feels if the students understand just how passionate she is about her content then that will rub off on them, creating an internal passion for math as well. Lastly, Teacher A realizes she needs some help with classroom management. The suggestion of seating chart, which would group certain personalities away from each, and work as assigned small groups as well, also was made. Teacher A seemed responsive to this and is taking it into consideration. I do believe that perhaps Teacher A could do well with some professional development on classroom management to make her a more effective teacher.

Reference

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APPENDIX A

The Real Meal Deal



**Reporting Category** Probability and Statistics

**Topic** Computing the number of outcomes, using the Fundamental (Basic)

Counting Principle

**Primary SOL** 7.10 The student will determine the probability of compound events,

using the Fundamental (Basic) Counting Principle.

**Related SOL** 7.9

**Materials**

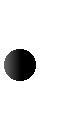
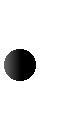
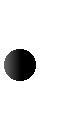


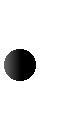
Chart paper



Markers



The Real Meal Deal activity sheet (attached)



Calculators

**Vocabulary**

*probability, outcome, sample space, impossible event, certain event, equally likely, tree diagram, simple event, independent event, dependent event* (earlier grades)

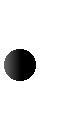
*compound event, Fundamental (Basic) Counting Principle* (7.10)

*theoretical probability, experimental probability, Law of Large Numbers* (7.9)

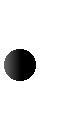
**Student/Teacher Actions (what students and teachers should be doing to facilitate learning)**

1. Have students work in small groups to find all the possible outcomes of one of the following scenarios (or create your own). Have students work with markers on chart paper

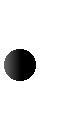
so their work can be displayed.

 Scenario A: John can take three classes a day. For first period, he can choose math or English. For second period, he can choose history, science, or computer concepts. For third period, he can choose art, music, or drama. How many different schedules of

three classes are possible?

 Scenario B: In the sub shop you can choose your bread, meat, and condiments. The bread choices are white, wheat, or rye. The meat choices are ham, turkey, roast beef, or bologna. The condiment choices are mayonnaise or mustard. You may choose only one bread, one meat, and one condiment. How many different sandwiches can be

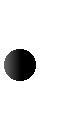
ordered?

 Scenario C: Trying to decide what to wear to school, you look in your closet and see shirts, pants, and shoes. For shirts you see short sleeves and long sleeves. For pants you see jeans and shorts. For shoes you see athletic shoes, sandals, and hiking boots. How many outfits can you choose from?

Have students present their work to the class. Discuss vocabulary terms like outcomes, sample space, and tree diagrams as they come up in student work. Ask students to think of a more efficient way to find the total number of outcomes when given a set of choices. Discuss the Fundamental (Basic) Counting Principle—a computational procedure to determine the number of possible outcomes of several events—and how it can be related to tree diagrams.

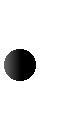
3. Distribute The Real Meal Deal activity sheet, and have students complete it.

**Assessment**

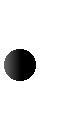
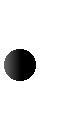
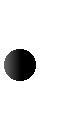
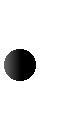


**Questions**

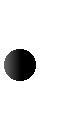
* What is the difference between a compound event and a simple event?
* What is the Fundamental (Basic) Counting Principle, and how can it help you to determine the probability of an event?



**Journal/Writing Prompts**

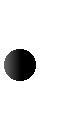
* **Extensions and Connections (for all students)**
* 
* Have students bring in a menu from a local restaurant and repeat the Real Meal Deal activity.
* **Strategies for Differentiation**
* 
* Limit the menu choices, or create a different menu, reducing the amount of work needed.
* Frame the menu categories so they are separated.
* 
* Create a frame for tree diagrams as a guide for students to complete.
* 
* Have students record Real Meal combinations on a chart.
* Describe what connections can be made between the Fundamental (Basic) Counting Principle and tree diagrams.
* Explain the Fundamental (Basic) Counting Principle to someone who has never heard of it.

**Extensions and Connections (for all students)**



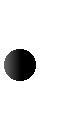
Have students bring in a menu from a local restaurant and repeat the Real Meal Deal activity.

**Strategies for Differentiation**

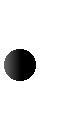


Limit the menu choices, or create a different menu, reducing the amount of work needed.

Frame the menu categories so they are separated.



Create a frame for tree diagrams as a guide for students to complete.



Have students record Real Meal combinations on a chart.

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**The Real Meal Deal**

**MENU**

**Sandwiches**

Ham and Turkey Club BLT

Roast beef on Rye Sliced BBQ

Italian Cold Cut Sub Hamburger

**French Fries:** small medium large

**Salads** **Dressings**

Garden Salad Ranch

Chef Salad French

Caesar Salad Creamy Italian

**Dessert**

Chocolate Chip Cookie

Brownie Sundae

|  |  |  |  |
| --- | --- | --- | --- |
| **Beverages** |  |  |  |
| Soda: | small | medium | large |
| Tea: | small | medium | large |
| Milk: | regular | low-fat |  |
| Coffee: | regular | decaf |  |

**Activity:**

1. Determine the number of choices a customer has for the following meals. For each, display the choices with a tree diagram, and check with the Fundamental (Basic) Counting Principle.

o

o

o

soda, sandwich, and fries

salad with dressing and tea

sandwich, dessert, and milk

1. How many possible meals can be served at the Real Meal Restaurant?
2. Make up your own question using the Real Meal Restaurant Menu.

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