Equation Activity

Michelle Mazzucco, Math

Are your students puzzled by equations? This activity will bring fun, challenge and engagement to your students as they build their equation skills. Students work in groups of four, and each group is given a set of nine laminated cards. The nine cards are divided among the group and each student is asked to solve the four equations that are located on the perimeter of their cards and record their answer next to the equation using a dry erase marker. Once this is completed, the group is ready to put the equation puzzle together so that it forms a 3 by 3 square and all the adjacent sides have the same solution.

During this activity, you will see students engrossed in solving equations and working as a team because they know they must participate so that they can contribute a piece of the puzzle. If a group has trouble fitting the puzzle pieces together, they must work together to find which equations were solved incorrectly so that they can get the pieces to match.

Continued p. 5

Comic Strip Lessons

Darien Keane, Communications

Is “real life” funnier than “fiction”? Some might answer, “It depends on the life.” When learning about the transactional model of communication, students discover that there are many variables to consider in every communication encounter. Recently I came across a colorful idea: use a comic strip to teach. The idea is to take a process and turn it into a visual representation of real life.

Students used information from lecture and the textbook to create a cartoon strip about a recent communication event. The cartoon strip had to be at least 6 frames long and in color. Students were free to exaggerate the encounter for comic impact. For all the artistically challenged, I made sure they knew that stick figures, stamps, and/or stickers were fine.

After they created their strip they had to explain how the story represented the different parts of the model. Volunteers shared their cartoon with the entire class using a document camera.

As it turns out, real life is funnier than fiction!
Mindfulness in Dental Hygiene
Debbie Holexa, RDH, MAEd

Dental Hygiene is a profession steeped in science and academic rigor, balanced with technical skills and behavioral awareness. Developing professional, technically competent and compassionate clinicians requires a broad skill set. Mesa Community College’s Dental Hygiene curriculum is delivered in such a way to develop these skills in a unique way, unlike any other program in the country.

Mindfulness, also known as present moment awareness, is at the heart of Mesa’s dental hygiene curriculum delivery. Mindfulness is a way of paying deliberate attention to what is going on in the moment, whether pleasant or unpleasant, in an open, curious, non-judgmental way. This practice cultivates the ability of an individual to accept things as they are, moving from a place of reactivity to one of responding. This style of educating enhances one’s ability to become more compassionate and empathetic, both of which enhance a patient-clinician relationship.

Mindfulness is a practice that directly enhances self-awareness, which feeds the remaining pillars of EI. This is a key component in developing the requisite behavior skills for patient care.

A “Pause Practice” opens many classes with the ringing of a ceremonial bell or bowl. Mindful/self-awareness practices such as labeling feelings, describing felt senses (body sensations), focus and breath-work are regularly incorporated into the dental hygiene courses. A “Pause Practice” opens many classes with the ringing of a ceremonial bell or bowl. Three minutes of silence follow, with instructions to focus on the breath and label thoughts, “thinking”, when they arise reconnecting with breath. Each Pause Practice concludes with journal writing allowing students the opportunity to note what might be happening within them in the moment.

A person’s Emotional Intelligence is often quoted as being more important than IQ in the work force, a “soft skill” that until recently has received minimal focus in academic education. The four pillars of Emotional Intelligence are Self-Awareness, Emotional Regulation, Social Awareness and Relationship Management.

How do we know this approach to education is making a difference? The dental community in the Valley repeatedly let us know, through employment surveys, that our dental hygiene grads are better communicators and have a higher level of professionalism than others. One dentist said, “I don’t know what it is but there is something different about Mesa grads”. Another stated our grads had a “different vibe”. Anecdotal? Yes, but meaningful enough for us to continue to ring our Bell, Pause and Notice.
NoodleFace
Kristine Ouzts, Business

How can you turn down a real business opportunity? Well iTeach Introduction to Marketing and we didn’t. When MCC was approached by Tim Harris, inventor of NoodleFace, a new water toy we used it in MKT271 to learn about new product development. Students created partnerships of two or three students. Each partnership worked on different topics such as packaging, pricing, market acceptance, target market or product placement.

NoodleFace gave students the chance to not only learn about marketing research, but to really do it. Each team defined the purpose for their research and chose whether they would do primary or secondary research. Some teams chose to conduct a survey and some visited numerous retail stores, while others searched the internet for competitive products and information about packaging material and colors.

Our inventor, Tim Harris returned to hear each team present their findings in a class presentation. The variety of topics provided Mr. Harris with some information and recommendations that will help him better know how he should price NoodleFace, where he should sell it and how packaging can improve sales.

M&M and Probability Activity
Dr. Jodi Richardson-Delgado, Psychology

Sampling with replacement and probability are concepts that are essential in statistics and research methods. This activity is done after a lecture has been given on probability and sampling with replacement. Students are instructed to do some “testing” of probability on their own. **Students pair up and are given a bag of M&M’s. (No one can eat the M&M’s until after the activity.)**

First, students choose the role of recorder and selector. The selector covers their eyes, randomly selects M&Ms and replaces what they select 50 times. The recorder records the color of the M&M for each selection and helps the selector mix the M&M’s. Once the recorder has recorded the 50 selections students can calculate the actual results obtained for each color of M&M’s. Students use the probability equation for the actual results. Then students count the number of each color of M&M in the bag. The theoretical probability is then calculated for each color. The theoretical probability can then be compared with the actual probability. For example if the bag of M&Ms is 20% blue. Students should have chosen about 10 blue M&M’s in their sample of 50 using random selection with replacement. Once the students have calculated their data we share the results. We then discuss the difference between actual probability and theoretical probability. We also discuss any issues of random sampling with replacement. **The selector covers their eyes, randomly selects M&Ms and replaces what they select 50 times.**

This activity was adapted from an unknown source. This activity can also be altered for many different concepts in Research Methods or Statistics.
According to the currently accepted theory of how our solar system formed, the solar nebular theory, a planet’s mass and composition are greatly influenced by where it formed in relation to the Sun due to temperature and nebula density controls. That, in turn, determines whether a planet will be able to hold onto an atmosphere, how it will control climate, and even how geologic activity works on a planet. The sheer number of factors and how they are related to each other is often quite confusing and students can have a hard time keeping track of how each property affects others. Diagrams are helpful, but even three-dimensional videos don’t convey the effects clearly.

Students of all ages enjoy seeing each step in the process in a tangible way, so I’ve developed a series of rather messy demonstrations that illustrate how our solar system could have formed. At first, you have to use your imagination a bit to envision a cloud of dust and gas in space. As that cloud rotates, it shrinks. As it shrinks, the rotation speeds up similar to a tornado. Recall that “tornado-in-a-bottle” experiment you did in middle school! Add some glitter or sand in that bottle and you’ll notice that it all clumps up at the bottom of the bottle as you spin it. The solar system did the same thing— all dense material collected near the center. Eventually, the density and temperature increase so much that a star is born. The leftover dense material is available to form planets, so those planets become planets like Earth made of mostly rock and metal. Because rock and metal cool off so quickly, the planets form quickly and don’t get very big or massive. That process of

Melissa Bunte New Faculty in Astronomy at MCC.

Welcome New MCC Faculty

Back Row: Bryce Bond, Sean Newton, Todd Luther
Front Row: Belinda Weiss, Kimberly Focht, Melissa Bunte, Charlotte Ezell, Elizabeth Allen
What gets me up in the morning?

Sunrise is special! I see a lot of superb morning light shows while out running and biking. OK, I am the early bird and not the night owl and I recognize we all have our own daily rhythm.

But I don’t get up to exercise. I get up because I believe in the value of a community college education. I believe in our mission and it motivates me to be my best. I believe in our students, faculty and staff and I focus all my energy on supporting teaching and learning across the college.

Teaching is hard work. **To engage and inspire is a creative endeavor that takes tremendous commitment and enormous effort.** I taught everything from high school to grad school and found each level challenging and rewarding. To do it well, I had to give myself up, heart and soul, to the task.

**You are engaged in great work. You inspire me with the way you transform lives and make a difference.**

What motivates you to get up in the morning?

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**Dr. Jim Mabry, MCC**

**Vice President of Academic Affairs**

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**Continued: Equation Activity**

To encourage the students to focus on math rather than being tempted to send their next text message, add some competitiveness by offering extra credit on the next exam to the first team who solves the puzzle correctly. And, what student wouldn’t jump out of their seats at the mention of extra credit?

This activity can be adapted for content other than solving equations, so **let puzzles help break down the math barrier!**
Forming a planet is called accretion; particles swirling around in the nebula bump into each other and stick together. We demonstrate this with marbles or ping pong balls rolled in duct tape. Sprinkle some sand on a tarp and roll the ball—it will become covered in sand. (Use a lint roller. Roll it around to see how much dust it will collect.) The bigger the clump, the stronger its gravity so the more other material it attracts. All of the dense clumps are used up to make small planets quickly. Further out in the cloud, where there are fewer particles swirling and much colder temperatures, accretion occurs slowly. Planets that form that far away from the cloud center take much longer to form but can become very large and massive. The other difference is that there isn’t any dense rock or metal to make those planets—it’s all gas (mostly hydrogen and helium). We can show this difference with a different color or type of sand. Rolling a tape-covered ball in smaller grain sand will pick up more sand grains. Planets like Jupiter form in this region. Around that same distance from the nebula center, it is cold enough for substances like water to freeze, so ices become common. The planets that form do gather ices as well as gas. When the planets get too massive, they can actually melt the ices, so planets as large as Jupiter and Saturn are considered gas giants. Smaller planets like Uranus and Neptune can keep a lot of ices icy! Of course, this is a messy process in reality just like in the demonstration. The leftover bits that don’t wind up in a planet continue swirling around in space as asteroids (if they’re rock) or comets (if they’re far from the center and cold). Glitter makes a nice stand-in for comets. Because it’s so low density and has a flat surface area, it is easy to blow away similar to how the Sun’s solar wind blows material out of the solar system. The bonus: everyone leaves with a smile and some sparkles!

The interesting thing about this theory of a planet system formation is that it works for our solar system and we don’t know yet for certain if it applies to all star-planets systems. Of the nearly 5000 planets that have been detected orbiting other stars, many seem to follow these same rules but there are also some unexpected variations. The trouble is, all of those systems are very far away and it is extraordinarily difficult to spot them, much less watch their motion and measure distance, temperature, and density! We truly are trying to find needles in very large haystacks.

Continued: Solar System Glitter!

Janice Pierson, CTL

If you are interested in contributing to the iTEACH@MCC newsletter please contact Janice Pierson at: janice.pierson@mesacc.edu 461.7666 or stop by the CTL.

We are seeking articles on active learning, experiential learning, discipline collaboration, uses of technology in the classroom, and any other innovative teaching and learning happenings.

All Faculty (Adjunct, OSO, OYO, Specially Funded, and Residential) are encouraged to contribute.

This issue of iTEACH@MCC has been a labor of love as your new Faculty Developer. It is with great pride that we showcase the extraordinary teaching being done at MCC.

Thank you to Ryan Matthews, Photographer.