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Math in the Middle Newsletter November 2008

Math in the Middle

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NebraskaMATH Update

We have received numerous requests for information about the NebraskaMATH grant. Our team of educators, researchers, partners, and planners continue to meet to discuss implementation of the grant. While many of the "big picture" decisions have been made, we are still fleshing out final details in order to achieve a successful launch.

Please be sure to read our December issue of the Math in the Middle Newsletter - where we plan to disseminate all of the details.

M^2 Newsletter to Evolve January 2009

Beginning in January, the Math in the Middle Newsletter will become the NebraskaMATH Newsletter.

While the M^2 Institute will continue to equip middle level teacher leaders in mathematics and pedagogy, its continuation will fall under the larger umbrella of our new grant, NebraskaMATH. The goal of NebraskaMATH is to improve mathematics achievement across the state for all grade levels through its various programs, thus in order to reach a broader audience, we will adjust the newsletter accordingly.

We are excited to bring you information related to all of the NebraskaMATH programs in a monthly format. If you know of colleagues or others in education what would benefit from receiving our newsletter, please direct them to Shannon Parry, Event Coordiantor, at sparry3@unl.edu.

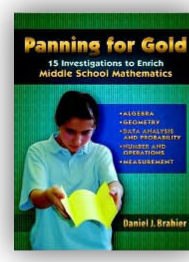
NTV Teacher of the Month: Cohort 4's Michael Ford

Michael Ford, fifth grade teacher at Elm Creek Public School and Math in the Middle participant, is a tremendous teacher. Just ask his students. They collectively wrote to NTV, Central Nebraska's ABC Affiliate, to nominate him as Teacher of the Month. In their nomination letters, they wrote that he "even makes recess a learning experience." He was selected from a large pool of excellent and beloved teachers, and was very surprised at the honor.

"I can't believe that they did it without me knowing because I've only been gone one or two days this year and for them to sneak that in on me, and then my wife knows about it, it is a pretty big surprise," said Ford.

Congratulations to Michael Ford!

A Must-Read for Habits of Mind Problem Seekers



Teachers looking for more **habits-of-mind** type problems to use with students may want to check out *Panning for Gold: 15 Investigations to Enrich Middle School Mathematics*, by Daniel J. Brahier. This new book features 15 multi-day activities, along with notes from the author about questions he asked students and how these went when he tried them with his own middle school students.

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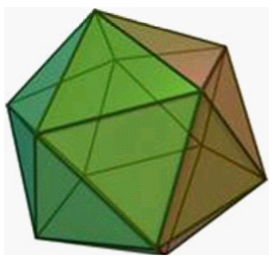
Math Challenge Corner

What do soccer balls and equilateral triangles have in common?

You may think the answer to this question is "not much." Other than the fact that they are composed of shapes which you can name (triangles, pentagons and hexagons), one brings to mind desks in a geometry classroom; the other white hash-marks on an open, green field.

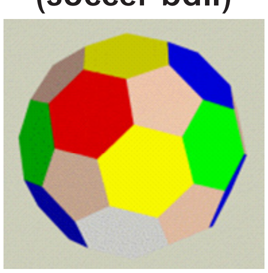
However, Anna Anderson, author of an expository paper entitled "Archimedean Solids" and an August 2008 Math in the Middle graduate, would tell you that an equilateral triangle and a soccer ball have much in common.



Regular Icosahedron

To see the connection, first consider the Icosahedron, a three-dimensional solid, shown in the illustration. Notice that each face is a regular (or equilateral) triangle. The term regular indicates that all edges and all angles of which the shape is composed are congruent. Also notice that at each vertex (or corner) five faces meet at a point. Thus, each face of the solid is a regular polygon and at each vertex, the faces meet at a corner in exactly the same way. This makes the entire solid regular in a three-dimensional sense. There are only five such regular solids, three of which are formed by equilateral triangles (can you think of any others?), and they are given the name Platonic Solids in honor of the Greek philosopher Plato, who first studied them.

Truncated Icosahedron (soccer ball)



Now, how do we make the leap from a Platonic solid to the soccer ball? First, notice that the soccer ball is not a Platonic Solid since although every face is a regular polygon, not every face is the same shape. Second, observe that the illustration refers to a soccer ball as a truncated Icosahedron. This suggests that we ought to 'cut off' parts of the Icosahedron in order to obtain the Truncated Icosahedron. Notice that slicing off a vertex or corner of the Icosahedron would leave a pentagonal face; and that slicing off the three corners surrounding any one triangular face results in a hexagon; thereby forming the solid with alternating pentagonal and hexagonal faces, otherwise known as the soccer ball.

For beautiful illustrations and explanations of other truncated Platonic Solids, and to learn about Archimedean Solids, be sure to read Anna Anderson's expository paper at **http://scimath.unl.edu/MIM/index.php**.

Coming Soon . . .

As part of our holiday edition of the Math in the Middle Newsletter, we'd like to showcase all of the "additions" to our M^2 family.

If you have seen your family grow since beginning in the M^2 Institute, please send Shannon Parry (sparry3@unl.edu) a picture and whatever stats or quotes you'd like to contribute.

Besides language and music, [mathematics] is one of the primary manifestations of the free creative powers of the human mind, and it is the universal organ for world-understanding through theoretical construction. Mathematics must therefore remain an essential element of the knowledge and abilities which we have to teach, of the culture we have to transmit, to the next generation.

– Hermann Weyl

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