*E-mail correspondence with a teacher contact in Australia:*

To: adrian@apollotutoring.com
Sent: Sun, Jul 20, 2014 12:39 AM PDT
Subject: Pi day. May I please intrude in your time?

Hello Adrian, I found you on the web. I am a relief teacher, and wanted to make a fun day out of the first day of school after our winter break. (22/7). Maths is so often seen as the dirge of learning, so I wanted the children to have fun and learn. Do you have some lessons suitable for children aged 10.

Also, I read a theory in your article (The Fresno Bee (other opinions) page B9. 10/3/2007)
"The sun traces out a path in the sky which is exactly Pi units long from horizon to horizon."

Can you explain in practical terms what this theory means? I can't quite envision it.

Is it that the "path of light from the Sun" that shines on Earth (that is from horizon to horizon) is 3.14.....units of the entire circumference of Earth's orbit around the Sun? It just doesn't seem small enough. - I guess it really depends on what size those units are..... Fascinating!

What a dilemma?
I would like to share it with the class.
I am having such fun just thinking about it. :-)

Looking forward to your response (if you have time)

Happy Pi Day
Cathrine.

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From: Adrian Apollo <adrian@apollotutoring.com>
Date: Sun, 20 Jul 2014 02:19:43 -0700

Hi Cathrine,

I'm so happy that you asked! You're actually the first person to ever contact me after reading my Pi Day article online, so I'm thrilled that you wrote me. Also, I have never actually celebrated the "22/7" version, so I'm happy that you got me ready for it a couple days in advance.

Here's a GIF file to help you understand:

http://en.wikipedia.org/wiki/Radian#mediaviewer/File:Circle_radians.gif

"Rad" is an abbreviation for "radian". Now technically, a "radian" is a unit of angular

measurement, similar to the term "degree" that is used in the 360-degrees-per-circle method, however one "radian" is very large compared to one "degree".

The neat thing about radians, which is why mathematicians prefer to use it (instead of degrees), is that if you measure the *length* of the segment on the circle itself that is created by the angle, that *length*, when using the radian system, is the *same* as the angular measurement. Mathematicians like to look for ways to measure things that are "natural", or in other words, that "fit" the nature of the things you're working with. There is nothing natural about 360 degrees in a circle, but if you measure angles the radian way, it is very natural.

One important thing to keep in mind is that the length units that we're talking about are radii. The radius of the circle is the measuring stick and the measuring stick is one radius long. You can see how that plays out when you watch the GIF file and see how one radius gets "stood up", vertically, and then falls down upon the circle itself.

Now what I wrote in the article requires a tiny bit of assumption-making that will be difficult for the uninitiated, but people with a science background can quickly see what I am saying. You have to imaging a giant circle going around the earth -- and I don't mean *on* the earth, I mean a circle going around up in the sky. If there were an *actual* circle up there, say, made out of a very long piece of aluminum tubing, going all the way around the earth, let's say at an elevation of 100,000 feet, then if you took a tape measure and measured along that tube from "horizon to horizon" you would get a length that is pi units long (with one unit being equal to one radius of the huge aluminum circle). Of course, it's much easier to imagine a circle "up there" than put a real one up there, so that was the mental picture I was trying to evoke. Realistically, I knew that the average reader would have to take my word for it.

Have you looked at the videos on the Exploratorium's website. Here's a link to view a video from Pi Day 2012. If you watch what Lori Lambertson does with the string with the kids standing around the circle, that should give you an idea of something really neat that you can do with your students:

http://www.exploratorium.edu/tv/index.php?project=80&program=1324

There are links to some other Pi-related videos on the right-hand side of that screen.

Let me know if there's any more info I can give or clarifications that I can make. I'd be happy to oblige.

Thanks!

Adrian

--- On Sun, 7/20/14, [Cathrine] wrote:

Good morning Adrian,  (It is now Monday 00:25.)

Thank you for your very rapid reply, you did make a very early start today!

Thanks especially for the web links to Pi (Approximation) Day celebrations.
Your explanation related to the Sun's path was clear, and makes sense. I was expecting something a bit more complicated. :-/

I am now looking forward to compiling my day's plan.

Introducing "Pi Day" to the school -

Spelling words, word wheels, writing activities, demonstrating a circular hopscotch game (I learnt to play 45 years ago), and of course determining what Pi means. I can see balls, circular balloons, string, measuring tapes and markers will be useful. I will have to think up an Art session. We might even eat some pie at the end of the day.

I will have to use a tambourine to gain attention of course!!!

Thanks for the encouragement,

Once again, Happy Pi Day

Cathrine

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Date: Tue, 22 Jul 2014 01:21:28 -0700

From: Adrian Apollo <adrian@apollotutoring.com>

Subject: Re: Re-Pi (approximation) Day

Happy Pi Day, Cathrine!

I hope it went well. Can you let me know how things went? I'm very curious.

I like the part about the tambourine!

Cheers,

Adrian

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From: Cathrine

Date: Tue, 22 Jul 2014 22:41:50 +0800

Subject: Happy Pi Day to you too!

Well as relief teaching goes, I was restricted to teaching about Pi for only 1h 4m. That was time to talk about circles, discuss pipes, (in local road works) containers, spheres, pies, pizza, penny farthing bikes and time enough to introduce Pi and explain its origination, and to use a basketball and tape measure to demonstrate its existence. We also talked about inverse operations. Then half the class were given balloons, their shoulder partner helped them measure the circumference and then calculate the diameter. The other half of the class received their balloon and repeated the process. Comparisons were made, then they each decorated their balloons (art). The balloons were put away safely, so they could take them home to talk to their parents about it. I then created a hopscotch game on the classroom floor using sticky tape (perhaps you call it bear tape.) the children called it the "Ferris wheel hopscotch". They each decorated a white stone which they used as a marker (we call it a "tore") and proceeded to the basketball courts to draw up their hopscotch games with chalk. The children played in pairs and some used the circles on the court as the wheel adding only the 4 diameters needed and the three hopping squares. (I did think about making them hopping circles).

Lots of fun.... Enjoyed by 32 students and one (too old??? No not old enough!!) Teacher.

Cathrine.