Try these if you get the chance:

Here are five problems related to the number 9:

Have you ever shared this one with your students?

Once upon a time there was this 3rd grader who was really good at basketball but basketball didn't start until 5th grade at his school. Well the 5th grade basketball coach went to the principal and ask if the 3rd grader could just skip 4th grade so she could be on the her team the following year. The principal said it would only be all right if she could pass a test that the 4th grade teacher would make up. The 4th grade teacher wanted to help the team out so just made up a short math test for her to take on multiplying. To be fair though the 4th grade teacher made it a really hard multiplying test because she used the biggest number 9!!!!

Here is the test.

Name _____

2 X 9 = ___
3 X 9 = ___
4 X 9 = ___
5 X 9 = ___
6 X 9 = ___
7 X 9 = ___
8 X 9 = ___
9 X 9 = ___

Well when the 3rd grade student wasn't very good at math so when she say the test so just kind of gave up. However, she thought she would at least count how many wrong. She started at the top and wrote 1, 2, 3, 4, 5, 6, 7, and hesitated as she wrote 8, as she wasn't sure....
So now the test looked like this:

Name _____

2 X 9 = 1
3 X 9 = 2
4 X 9 = 3
5 X 9 = 4
6 X 9 = 5
7 X 9 = 6
8 X 9 = 7
9 X 9 = 8

Then she remembered that she could check how many she had wrong by just recounting them from the bottom up. So after the 8 she started with a 1 again, above that a 2, etc. until she got to writing the 8 after the 1 thus she was sure she had 8 wrong, so she wrote her name on the test and handed it in.

Here is what the test looks like now:
Name _____

2 X 9 = 18
3 X 9 = 27
4 X 9 = 36
5 X 9 = 45
6 X 9 = 54
7 X 9 = 63
8 X 9 = 72
9 X 9 = 81

I usually write the test on the board as I am telling the story (by the way, I just made this story up as the original was about a star high school football player trying to get into a college) and hesitate only a second before going onto the lesson for the day as they are still just catching on.

Problem 2 Is 54321360872 evenly divisible by 9?

Just cross out any combination that add up to 9 like 5+4+3+2+1+3+6+0+8+7+2

the 5 + 4
then the 3 and the 6
then the 2 and the 7
then the 1 and the 8
and note the 6 , 0, and 2 remain. Since what is left doesn't add up to 9 the number 54321360872 is not evenly divisible by 9.

Note the multiplication table above. What do all the multiples of 9 add up to?

Problem 3 What happened to the other dollar?

The sets of parents accompanied there 3rd graders on a class trip where they had to spend one night in a motel. The of the boys talked there parents into letting the three boys share an adjoining room to one of the sets of parents. The mother the adjoining room parent wanted to have the children learn about money so found out that the adjoining room cost $30 extra and had each parent give their child a $10 bill to give the manager when he came to the door to collect. The mother also ask the manager to send someone from the motel up to the children's room to request the money for the room.

Anyway, the bus boy knocked on the door but the children said they couldn't let anybody in so they slid each of the ten dollar bills under the door. When the bus boy got back to the desk the manager wanted to test the children's ingenuity so went back up the room and told the children that there was a special that day on adjoining rooms and the room was only $25 so slipped five ones back under the door. When Johnny picked up the money and looked at his two friends he realized he couldn't figure out how to divide the $5 evenly to the three of them that fast but he had an idea. Johnny gave each of his friends $1 back and kept a $1 for himself and then slipped a $2 tip back under the door for the manager being honest and helpful. This pleased the manager and even his parents when they found out later how smart their little Johnny was.

This would normally be the end of the story but when Johnny got home he started rethinking about the motel bill and had a problem he couldn't quite figure out.

You see, Johnny was thinking that if his they originally gave the manager three $10's that would be how much? answer from students: $30
Then each boy received $1 back so now how much had each boy paid? students hopefully answer: $10 - $1 is $9

Well, 3 times $9 is how much? students answer $27

Well, $27 plus the $2 tip given the manager is how much? students answer $29

But originally there was $30 wasn't there? students answer YES

What Happened to the Other $1????????

**********Answer is at the very bottom of this email **********

Problem 4 The old Orange Kangaroo in Denmark trick

Pick a number from 2 through 9.

Take the number times 9.

Add the digits in your current number together. (Note from what you've learned above the answer now will always be 9)

Subtract 5 from this number. (Note: So now everyone has 4, but they don't know that.)

Now we are going to change our number to a letter of the alphabet. Lets use this secret coding method this time: If you have a 1 change it to an A, if a 2 change it to a B, if you have a 3 now it would be a what? students say: C ; and so forth.

OK class does everyone have a letter of the alphabet now (Note: they'll all have a D but they don't know that)

Now think of a country that starts with a D (this would work better if you used it right after mentioning Denmark earlier in the Day)

OK, now take the last letter in this country and think of an animal that starts with this letter. (Note: everyone thinks of a kangaroo of course.)

OK, now take the last letter of this animal and think of a color that starts with this letter. (Note: everyone thinks of the color orange of course)

Then say after a slight pause: Raise you hand if you are thinking about an Orange Kangaroo in Denmark!!!

The kids eyes will all light up and they will think you are a genius!!!!!!!

Problem #5

In the math movie Stand and Deliver

the math teacher shows his students how he uses his the fingers on his two hands to do the multiplication table of 9's with his fingers.

Hold all ten fingers up and just curl down one finger to solve the problem. Simply curl down the finger that corresponds to what number you wish to take times 9. Now look at the remaining fingers. Count how many fingers remain to the left of the lowered finger for the first digit of the answer and then how many fingers to the right of the lowered finger for the last digit of the answer.

Example: 3 times 9, lower your third finger (which would be your middle finger on your left hand), count how many fingers remain on the left side (answer: 2) and how many fingers to the right of the lowered finger (answer: 7). Yes, 3 times 9 is 27. Try any other multiple of 9 from the table in Problem #1 above. Cool Heh! Your students will think you are a genius!!!

Let me know how these work and I'll send you some others. Remind me that you were send five cool problems about the nifty number nine.

Paul

----- Original Message -----
From: "Christi Marquardt" <cmarquardt@mssd14.k12.co.us>
To: "Paul and Judy Konichek" <konichek@charter.net>
Sent: Thursday, April 28, 2005 6:38 AM
Subject: Re: Ponder the Sky With Paul!

> Thank you very very much! We'll give it a go! (third grade high math)
> Christi
>

What happened to the other $1?????

The problem you must get the students to understand after they have pondered the answer overnight is:

After you get 3 times $9 is $27 you came up with the $9 by subtracting $1 from the $10's three times

so you cannot expect to subtract $3 and turn around and add $2 to get back to the same amount.

What you have to do because you subtracted the $3 is to subtract the $2 to get $25 (the price of the room). The $3 and the $2 are both part of the $5 back so you cannot split them up by subtracting $3 and adding $2. The $3 and the $2 have done to them the same math operation.

In a higher math class it would look like this: $30 - $5 = $25
$30 -
($3 + $2) = $25
wrong way to distribute the

minus sign: $30 - $3 + $2 does not equal $25
the correct way to distribute the minus
sign: $30 - $3 - $2 = $25
So when my math students forget to distribute the minus sign to the second number in the parenthesis I just say to them, "What happened to the other dollar" and they realize what they did wrong.

I use to run a junior high contest for fourteen years before moving into another school district and it was my honor to think up ways to turn students onto mathematics. This was one of the fourteen lectures I gave these 7th and 8th graders to pass the time while the judges were figuring out the outcome of the all day math contest.

Paul
GNATS