ALL IN ONE DAY

MILDRED MARIE HARMAN

Northern Garrett County Jr.-Sr. High School, Accident, Maryland

CHARACTERS

Jane	Mother
John	Father
Sue	Their Daughter
Junior	Their Son

SCENE I

Narr. The first scene takes place in the kitchen of John Smith's farm home. It is a nice, warm enchanting morning in late May. Everything is quiet in the early morning except for an occasional clatter and bang of pans as Jane, John's pretty wife goes about the task of preparing breakfast. We find her now making coffee.

Jane: John likes his coffee made with a tablespoon of coffee to a cup of water. (Measures coffee) One, Two. (She goes to the sink and measures two cups of water.) One, Two. There! It's ready for the stove. (Sets coffee on the stove, steps back and takes a good look at her new electric stove.) It sure is nice not to have to build fire in the morning. Electricity is so much faster and cleaner, too. (Looks lovingly at the stove) Why, these lines remind me of some of the geometry I had in high school! I have never realized before, how much math was connected with a stove. For example: (touching each in turn) this temperature scale for the oven, the minute and second timer, and the automatic oven timer that turns the oven off at the right time. None of them would be possible without math. If fact, the stove would not be possible. Math is a factor of electricity and of all our modernized equipment today.

Well, it's something to think about but that won't get breakfast ready. I guess I'll have grapefruit juice. (She goes to the refrigerator and takes out a quart jar containing juice and pours half of it into four small glasses and then, surveying the remainder says:) That will be enough for one more time provided John or one of the kids doesn't find it in the refrigerator. (Jane puts a skillet on the stove and puts some butter in to melt.) Now let's see, John will eat three eggs, Junior two, Sue one and myself one. That's seven. Gee! That's math, too, It's about time for the family to come down. (She starts putting things on the table.)

(John enters looking very sleepy.)

Jane: Good morning, John.

John: What's so good about it? I didn't get enough sleep last night.

Jane: It's not my fault! You'll learn not to stay up reading half the night. Are the children coming?

John: I guess.

(Sue and Junior enter.)

Jr.: Mornin', Mom and Dad.

Sue: Good Morning!

Jane: Hello children. Breakfast is ready.

(The family sits down at the table.)

Jr.: What are you going to do today, Dad?

John: Oh, I think I'll mow some hay in the south field on the other side of the road. The weather forecast says fair this weekend.

Jr.: How much are you going to cut down?

John: Since tomorrow's Saturday we should be able to take in about six loads in the afternoon, and the hay's pretty good this year. How much do you think, will be in an acre?

Jr.: Oh, I'd say about $2\frac{1}{2}$ loads to the acre.

John: Yes, I guess that's about right. I better mow somewhere around two and one half acres then.

Jr.: Say Dad, that was a math problem wasn't it? We have an assignment in math to watch for a place that mathematics turns up in our daily life. That's the example I can take.

Jane: You know, I was just looking at our new stove this morning and thinking how much math was connected with it. You would be surprised. Do you know what we should do? We should all be real mathematics minded today and see just how much math we can find around us and then report our findings at the supper table tonight.

Jr.: O. K.

John: Sounds all right to me.

Sue: Where am I going to find math?

Jane: Don't worry too much about it, Sue. You can just tell us what you had in arithmetic class and maybe you can see something else. If not though, we'll see if we can help you think of something. Now run along and get ready for school. You just have an hour to get dressed and catch the bus, you know.

(The children start off stage.)

Jr.: Now right there was a math problem because Mother had to subtract the time it is now from the time when the bus comes.

Sue: Oh, I see. When Mother tells us to hurry and get dressed, in hopes that we will still have time to do the dishes before the bus comes, that's math.

Scene II

Narr. Scene II takes place in the evening of the same day. There is an air of impatience about the house. Each member of the family is anxious to tell his experiences of the day and each hopes the others haven't forgotten to watch for signs of math.

(Jane and Sue come on stage and begin to put supper on the table. John and Junior enter and wash their hands and faces. Then they all sit down and bow their heads for a few seconds. They begin to fill their plates.)

Jane: Well, I hope you all have a better appreciation of math now than you did this morning. How shall we tell about our findings Will it be O. K. to begin with the oldest and go to the youngest?

Jr.: Sure.

Sue: Go ahead Dad.

John: O. K. The first thing I remember that I did mathematical was right after I stepped into the milk house. I started running the water to wash the cows and the very first thing I had to do was measure the detergent that the milk company suggested I use.

Jr.: Well that shouldn't have been hard, Dad.

John: It wasn't as easy as you think. The directions said use one half tablespoon for every gallon of water. As I had a 3 gallon bucket I had to use one and one half tablespoonfuls.

Jr.: What else mathematical did you do while you were milking?

John: Well, after I began milking, I decided to keep track of how much milk Star gave today. I weighed it this morning and again this evening and then I had to add the two weighings together. Also I figure the approximate number of gallons would be about $7\frac{1}{2}$ for the whole day.

Jr.: Did you do any of the mowing today?

John: Yes, I did, Junior, but when I went out I remembered that we hadn't figured how many rounds would be in $2\frac{1}{2}$ acres. I just took a guess and came up with about 12 rounds. You know, Junior all our figures on that hay are just estimates. We'll see tomorrow how good we are. At eleven-thirty I had only two more rounds to go and only a half hour to do it in. Would you have thought I could do it? Well, it just took a little math. I had been on the job since 9 o'clock. That meant I had been working $2\frac{1}{2}$ hours and had finished 10 rounds. That told me I was doing 4 rounds an hour. With 2 rounds and a half hour I decided I would be able to do it.

Sue: What happened after dinner, Dad?

John: Right after dinner a man came and wanted to buy 28 bushels

of wheat. This problem took a pencil and paper but it wasn't hard. I guess I'll tell you about one more problem concerning math before I stop.

Jane: Was it that letter you received today?

John: Yes, it was a notice which said that all stock holders in the Southern States Cooperative were to receive a dividend of $5\frac{1}{2}$ cents a share. My 385 shares are beginning to bring in more money all the time. I should be getting a check in a few days. It isn't a terrific amount but every drop in the bucket counts. Maybe we should each have something we want out of it. Be thinking what you would like to have for about five dollars.

Jr.: I would like to have a horn for my bicycle.

Sue: I want a new doll.

Jane: I'd like to have a new hat.

John: I just said be thinking, Remember?

Sue: I guess it's your turn, Mother.

Jane: All right. Here goes. When Dad was talking about weighing his milk, I wondered if you children realized the importance of scales. Nowadays it seems everything is weighed out in packages for us at the store and the only time we use the scale is when we weigh ourselves. Weighing is a very important way of measuring. It may be useful to have some knowledge of this different way of using mathematics which we cannot be without. There are other measuring units besides pounds and ounces, you know. With a system of grams you can weigh very small things. Then too, did you realize that when Dad orders a ton of feed he is ordering it by weight? I imagine you know how many pounds there are in a ton.

Sue: Sure, 2,000.

Jr.: Yes, in a short ton but in a long ton there is 2,240.

Sue: A long ton! What's that?

Jr.: Well, it used to be used a lot when people bought coal and hay by the long ton. Some places they still use it for coal. It's just another measurement. See?

Sue: I guess so.

John: How about letting mother go on.

Jane: All right. Here's some of the math that I saw today. The first thing I did when I woke up was try to think what day it was. After Friday came to my mind I wondered what the date was. And I'll tell you something. When I tried to remember that, my mind just went blank and I couldn't think of anything. So I got up and looked at the calendar. Since it was Friday, I looked down Friday's column. It wasn't the 3rd and it

wasn't the 10th and not the 17th, but I couldn't remember having a 24th so that must be what today is.

Jr.: But Mother, does the day of the year have anything to do with mathematics?

Jane: Just hold your shirt on and I'll tell you. Did you ever wonder how we got the calendar? Don't you imagine that it made a lot of work for somebody to figure a system out such as that. Just think of all the math it took coupled with quite a lot of astronomy to make a calendar that would work. And the one we have now isn't perfect. Now for some of the other problems I ran into. I made a batch of cookies today and the recipe said it only made one dozen cookies. Do you know what I did?

Sue: Made four recipes, I hope. (hopefully)

Jane: No, (laughingly) I figured 2 dozen would be enough for us at one time. Too many cookies aren't good for you, you know. Then I made a rice pudding and I only had half enough rice, so I had to cut all the other ingredients down to half, too. (stops and eats)

Jr.: Anything else Mom?

Jane: Yes, but you know, I believe we're forgetting the geometry side of our project. Look at the design in the tablecloth, the lincoleum on the floor, the rug on the living room floor, the curtains or just anything you want and you can see signs of geometry. You have it around you everywhere, all the time. Since I seem to be the treasurer of the family, or maybe you would call me just the bookkeeper, I had some problems along that line today. When Dad sold that wheat I had to record it. And when I went to town for my groceries it created quite an arithmetic problem. I got 3 loaves of bread at 17 cents a loaf, a jar of salad oil for 43 cents, 2 dozen oranges at 47 cents a dozen. A cake of yeast for 7 cents, and a bag of flour for $1.25. In addition to having to check the grocer's figures, I had to record it all in the record book. Boy, just wait till the end of the month, will I have a job!

Jane: I suppose I better stop and give Junior a chance. He looks so eager. What in the world have you been taking notes for, Jr.?

Jr.: Do you mind if I keep you in suspense about the notes awhile and tell you some of my other experiences first? I'll lead up to it by and by.

Jane: Well-ll I guess not if it's part of your story.

Jr.: O. K., then I'll begin by telling you what math I saw this morning. I had core the first three periods and we are studying

transportation. I got to thinking how much math went into the construction of our present transportation system and how dependent we are on transportation in turn for bringing clothing and especially food to us. Also, as our teacher brought out to our committee, that we wouldn't have our new school if it were not for transportation. There would be a much smaller, frame school house with one or two windows. In addition to Math helping our new school along indirectly through transportation it played a very direct part in the building of our school, too. First, the blue print has to be drawn. Then the cost had to be figured. This wasn't easy and if you don't believe me you can ask some of the senior boys. One of them told me they were drawing plans for houses. They had to figure the cost of their houses which took a lot of math, so what do you think a big school was like?

Sue: Golly, I bet it wasn't easy.

Jr.:   Then, of course, I was always running up against the problem of time. The other kids kept asking me "What time is it? When does this period end? How many more minutes in this period?"

Jane: Yes a lot of math *is* connected with time. What are you doing in math now, Junior?

Jr.:   Well, in math we are taking up percentage. Finding what per cent one number is of another, you know. They must think all kids are going to work in a bank, all the interest problems we have to do. And today we got an easy way to do them where you just move the decimal point two places to the left. It's called the 60 day 6% method. I guess it just works though for 60 days at 6%.

John: If you only had 30 days couldn't you just take half of it?

Jr.:   I don't know if it would work or not. We didn't have any problems like that.

John: How about trying it to see. Let's find the interest on $700 at 6% for 60 days.

Jr.:   Oh, that's easy. It's $7.00.

John: O. K. now let's make it 30 days, work it out the way you always have and see if the answer is $3.50.

        (Junior works it out on a piece of paper, figuring out loud.)

Jr.:   Let's see $700 times 6 over 100 times (pause) 30 days is 1/12 of a year so it would be times one-twelfth. Now cancel this and this and we have 7 over 2. That's 3 and one half dollars. It does, doesn't it! Now I guess I know *one* thing the other kids don't. Won't they be surprised when I start rattling off the answers to that kind of problems when we have them.

John: Now son, your friends may not appreciate your brains as much as you anticipate.

Jr.: In our discussion of where we saw math in our everyday life, one boy said he worked in the cafeteria and that Mrs. Macllwee always has an awful time deciding how many potatoes to peel.

Sue: But where does all that stuff you've been writing down come in?

Jr.: Hold your horses, little sister, I'm coming to that. You know Jim and Sally Wilson that walk down the lane with us. I was telling Jim about our family project and he said "Just wait till you take Algebra! You can work the craziest sounding problems with that. Some that you couldn't make the least bit of sense out of now." I asked him to give me an example, so he asked me, "What are three consecutive numbers whose sum is equal to 3 less than 75?" He said you might be able to figure it out by trial and error if you had a long time. But he figured it out in just a little bit by letting x equal the first number and—and————Aw heck, I don't know how he got it but pretty soon he said the numbers were 23, 24, and 25. We added them up and they made 72 which is 3 less than 75. All right, Sue here is where the notes come in.

Sue: But how?

Jr.: Well, while walking down the lane he asked my why I didn't take notes on what we said tonight. He told me they might come in handy next year especially if I get Mrs. Fleming for Algebra. She makes them each turn in a project at the end of each term and one of the subjects they can take is *math in everyday life*. He said my notes might help him because that is his project now. It has to be in in a week and he's not near finished. I told him I'd take notes and he could see if he could use anything we said. I told him about our hay problem this morning, too, Dad, and he was almost overjoyed. He thought that would be a wonderful thing to represent the farmer with.

Sue: Where was I when you and Jim were talking about all that stuff?

Jr.: Aw, you and Sally were poking along picking flowers somewhere.

Sue: Yea, and Sally told me some stuff, too. Just wait till you hear that, Smartie. I'll get even with you. Sally said she is taking business arithmetic and they learn a lot of short cuts like multiplying two numbers, with something called fractions hooked on the end together. What's a fraction anyway?

John: That, dear, is like $\frac{1}{2}$ or $\frac{1}{4}$ of an apple. It's a part of a whole apple or a part of a whole anything.

Sue: Oh, I see. Then Sally said, too, that she works in the cafeteria. And one week they have to count how many lunches the kids buy and the next week they have to sell tickets. Their money has to come out right or they have to do it all over again and try to find a mistake.

   (Sue stops for awhile and appears to be so engrossed in her thinking that she forgets to say anything.)

Jane: Did you have anything in arithmetic today that you want to tell us?

Sue: Oh, sure (becomes thoroughly alive again) we had some problems where we multiplied by two numbers like 78 multiplied by 24. I got mine all right and I don't think Bobby did.

Jr.: Did you learn anything more about telling time?

Sue: Yeah, and Miss Johnson gave us a 'rithmetic problem like Mother did this morning. She said, "If Johnny was sent to the store for a loaf of bread and he started out at 10 minutes after 4 and got back at 4:30; how long did it take him to go to the store and back?" I think I was the first one to get the answer. I just looked at the clock face we have hanging in our room and looked at ten after and then counted the minutes till I got to 4:30. It wasn't hard. I bet you can't guess what else we learned about time.

Jane: No, what?

Sue: Well, guess.

Jane: Oh, I guess Miss Johnson told you that people didn't always use clocks like ours but they used to use a sun dial.

Sue: No, she told us that when it's 9 o'clock here it's 6 o'clock in California. We had a map with the time belts on but you know I didn't see any buckles on those belts. (The family laughs at her.) Mother and I got the eggs this evening. I got the white ones and she got the brown ones. We got 188 in all and I got 60 of them. Mother, how many dozen more did you get than I did?

Jane: If junior will lend us a piece of paper we'll figure it out. (Junior tears off a sheet of paper and hands it to her.) First we better subtract 60 from 188. Let's see, 0 from 8 is 8 and 6 from 8 is 2 and bring down 1, that would be 128. That's how many I got. Now we'll divide 12 into 128. Twelve into 12 is 1, 12 into 8 is 0 and 8/12 or $\frac{2}{3}$. I got 10 $\frac{2}{3}$ dozen and you got 5 dozen. Subtract and I got 5$\frac{2}{3}$ dozen more than you did.

John: I saw an article in the paper the other day about how our

time belts in the United States were set up. I'll go see if I can find it.

Jr.: While you do that I'll go do my homework.

Jane: Will you help me clean up the dishes, Sue?

Sue: Sure.

SAVING SCIENCE RADIO PROGRAMS ON TAPE

HAROLD HAINFELD
Roosevelt School, Union City, N. J.

Once a radio program goes "off the air," it is usually difficult to borrow and impossible to keep a transcription of it for use in the class room. However there are some excellent science programs being broadcast that are worth saving for future school use.

Roosevelt School, located in the north-eastern part of New Jersey, is within range of two stations that broadcast programs designed for in-school listening. WNYE-FM, the New York City Board of Education station, and WBGO-FM, the Newark, N. J. school radio station, transmit science programs of value during school hours.

The use of our tape recorder has enabled us to start a library of useful science radio programs. If the program has enough merit for class room use, it can be saved for the future, when it is not available on radio, by recording it with our tape recorder.

Having a program recorded on tape offers solutions to other problems in radio utilization. Teachers are advised to preview films before use. By recording the program on tape, the teacher can pre-hear the program before using it in the classroom. If the program fails to meet his needs, the tape can be erased easily, and be available for another recording.

A program may be broadcast at one time of the year by the Newark or New York station, and yet fit our curriculum at another. A science broadcast may be in the morning and in departmental changing of classes, the teacher may not meet the students to hear the program until the afternoon. By recording broadcasts on tape, the best programs can be saved and used at the right time, as needed in the classroom.

During the past year we recorded programs from both WNYE and WBGO. "Pioneers In Science" was broadcast from New York, and "Science Lesson" from Newark. The former presented dramatically portions of the lives of scientists studied in the junior-high science and health class. "Science Lesson" was the audio portion of the television program designed to go with the recently adapted elementary science course of study in Newark.