PARENT PREPARATION

You don't have to have formal education training to be a homeschooling parent. It does help to be familiar with the philosophy behind whatever program you choose, however. The Waldorf approach emphasizes learning in an authentic context and this unit introduces and develops basic fractions skills through Gardening and Cooking. Using hands-on learning methods also helps meet the different strengths of the child, which are described as multiple intelligences. We know that people have many different ways of absorbing information; this

"...can be exemplified by the learning of skills ranging from riding a bicycle to delicate surgery, painting a picture or fine carpentry. Each kind may be called a center of learning or intelligence.

The Waldorf model has long confirmed that there are many different centers of intelligence. A child who may have trouble spelling may be a gifted handworker. The child who writes beyond their years may not focus as well on math. The child who draws and has artistic promise may not be graceful in movement. Traditional school models have often focused on the intellectual center alone to the detriment of other centers of learning. Thus children who may be extremely gifted, but in an unaddressed center of intelligence, may feel they are underachievers and have low self esteem. Our job as educators is to find the strengths of our children and allow them to blossom fully. To do this we must expose them to and help them explore as many different centers of learning and ability as possible.

We also must address the learning weaknesses of our children. One of the most effective ways to do this is to combine a strong center with a weaker center in a single activity. When we can combine two or more different centers this way, the stronger or more developed center can induce the weaker one into new understanding. Seymour Pappert, in his book "The Children's Machine", talks about 'kitchen math'. He observed that a person who could not reason out a fraction problem on paper was able to solve it simply by measuring out the fractions using flour and a measuring cup. Thus a practical, hands on experience overcame a difficulty in abstract reasoning. **When we combine a new subject with something a child already knows and enjoys, we enhance learning.**"

Quote taken from
http://www.weirdolls.com/misc/homeschool.html (emphasis added)

The most vital part of the unit, however, is something which cannot be packaged. It's you, the parent and instructor. Your mental preparedness for school is a key part of each day and it is your main task each morning. Look through the lessons for that day and reflect on how best to present them to your child. Be completely prepared by thinking through each step of the activity, gathering and ordering the materials, and taking the time to review any background information you may need in order to address your child's questions. Make sure you are at your best!

At the conclusion of each day, use the journalling pages to observe your child's development. It will be helpful to you if you date each journal entry. By the end of the unit, you will have a complete record for each of the four skills of your child's initial reaction as the skill was introduced, his experiences as he worked with the understandings involved, and anecdotes and evidence of mastery.

Please feel free to contact me at any time at waldorf_curric@yahoo.com.

UNIT TEXTS

The Little Mouse, the Red Ripe Strawberry, and the Big Hungry Bear. by Don and Audrey Wood. illustrated by Don Wood.

Carrots Love Tomatoes: Secrets of companion planting for successful gardening. Louise Riotte

Festivals Family and Food: Guide to seasonal celebration. Diana Carey. Judy Large

ADDITIONAL MATERIALS

11 x 17 graph paper
main lesson book (optional)

JOURNAL:

1. "PARTS OF A WHOLE" CONCEPT

JOURNAL:

2. RECOGNIZING A FRACTION

JOURNAL:

3. IDENTIFYING & UNDERSTANDING THE PARTS OF A FRACTION

JOURNAL:

4. WRITING FRACTIONS

LESSON PLANS

DAY ONE

Prepare the garden bed you will be using for your fractions unit. Don't use this bed for anything other than the unit activities; keep it separate from the rest of your garden. Tell your child that this is a new garden for school and that you'll be growing flowers and vegetables.

*** Note ***
If you don't have a yard or much space for a garden, please try to get some gardening space in your community to do this unit with. It will be nearly impossible to substitute container gardening as the garden bed serves as your "whole" when doing the fraction exercises; if you are using containers there will appear to be many smaller "wholes" and the concept that the entire group of containers is the real "whole" will be very difficult for your child to grasp.

DAY TWO – "PARTS OF A WHOLE" CONCEPT

Read The Little Mouse, the Red Ripe Strawberry, and The Big Hungry Bear. Explain to your child than when you cut something in two, each part is called a half. This is something your child will probably already know from practical life; ½ is the fraction children commonly have no difficulty understanding.

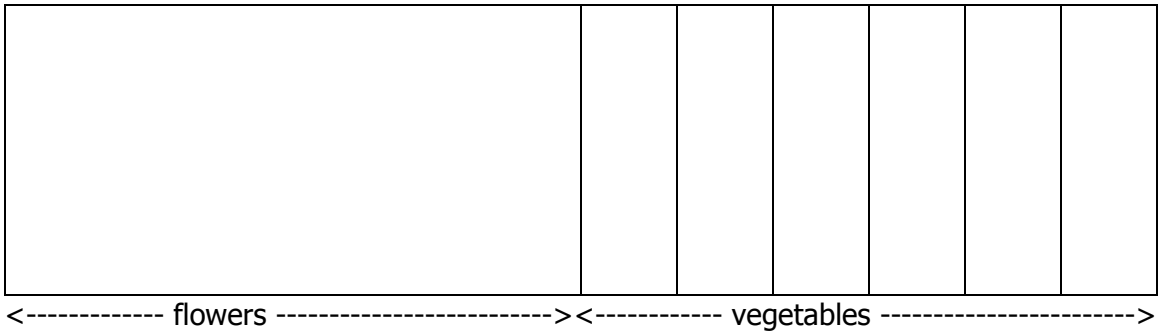
Divide your garden bed in half by creating a walkway down the middle. This walkway can be made of whatever you like – such as brick, gravel, stepping stones, or mulch – but it is important that it be strongly visible to the eye and not simply a dirt path through the bed.

DAY THREE

Divide one side of your garden bed into six equal parts; each of these parts will hold a row of vegetables. If you would like your child to work with fractions of a higher denominator than six, divide the vegetable bed into the number of rows of your choice. Make the divisions clear by marking each row with a line of string.

DAY THREE, CONTINUED

At this point, your garden should still be empty of plants. It should be laid out clearly to look like this:



DAY FOUR

Cook with your child, talking out loud as you measure the ingredients. Choose a recipe which contains fractions but don't call any extra attention to how they are written on the page. However, for at least one ingredient, choose a measuring cup which holds more than the recipe calls for and show your child how you are measuring a partial amount – for example, use a 4 cup Pyrex to measure 3 cups of milk. It will be easier for your child to see the partial amount if you measure with a clear container.

DAY FIVE – RECOGNIZING A FRACTION

For today's cooking activity, show your child the markings on the side of your measuring cups. Tell her that this is how you knew how to measure a partial amount, as you did yesterday. Explain that partial amounts of something are measured by special numbers called fractions and show her what a fraction looks like. See if she can find some fractions on other measuring tools, such as ½ teaspoon.

When you choose today's recipe, pick one which contains a fraction and make sure you have a measuring tool for that fraction. For example, choose a recipe which calls for ¼ cup honey and use the ¼ cup measure. When you give the ¼ cup measure to your child to help measure out the honey, see if she notices on her own that there is a fraction on the handle. If she doesn't, you can gently point it out such as, "look, I see another fraction!"

DAY SIX

Cook with your child, having her identify the fractions she finds both on the pages of the cookbook and on the measuring tools.

DAY SEVEN
ADDRESSING COMMON MISCONCEPTIONS

Today, cook a recipe with your child which doesn't contain any fractions. Ask her to find the fractions on the page. You may be surprised to find that your child chooses a whole number and identifies it as a fraction since she has concluded that every recipe has them... make sure that your child understands that not every recipe will contain fractions and that she should not be distressed if there are none.

DAY EIGHT
ADDRESSING COMMON MISCONCEPTIONS

For your final cooking activity, choose a recipe which contains only fractions with a numerator that is higher than one. Ask your child to find the fractions on the page. You may be surprised to find that your child declares there are none since she has concluded that all fractions have a one as the top number... make sure that your child understands that any number with a top part, a bottom part, and a dividing line is considered a fraction and that the top part can be any number at all.

DAY NINE

Using Carrots Love Tomatoes, create a plan for your garden. Determine which flowers and which vegetables you would like to plant. Be sure to read the "Vegetables" chapter for hints on which vegetable pairings will be most successful as well as those to avoid. When thinking of flowers for your garden, please read the "Poisonous Plants" chapter to avoid planting something which may inadvertantly harm your child. Finally, draw a diagram of the garden on graph paper (adult step) – only include the dividing line down the center which shows that half of the garden will be flowers and half of the garden will be vegetables.

To keep your child included in the garden planning, go to the nursery together and pick out the flowers for your flower bed.

Hang the diagram of your garden bed in the schoolroom for future reference and to be used in later activities.

DAY TEN

Plant flowers together in the flower half of your garden bed. Try to make the bed look quite full, planting the flowers all the way to the dividing walkway. Ask your child to identify how much of the garden has been planted (half) and color in that side of the diagram.

DAY ELEVEN – IDENTIFYING & UNDERSTANDING THE PARTS OF A FRACTION

Introduce the terms "numerator" and "denominator" to your child by reading the story "The Two Brothers." When you have finished the story, go back to your cookbook and cooking tools and have your child find some fractions (without any help from you). Then have her identify the numerator and denominator for several fractions (she will probably need some assistance with this).

If your child has trouble remembering term goes with which number, remind her that the numerator always comes first since Enumerate was the older brother. If she has trouble remembering the terms, read the story to her again over the next several days. You can also try acting out parts of the story by preparing breakfast together and playing the game Enumerate and Nomen played, to help her learn the rhymes.

DAY TWELVE

Look with your child at the diagram of your garden. The flowers half should be colored in, showing that it has been planted. Write the fraction ½ under that side of the diagram and write Flowers next to it. Explain to your child that the fraction ½ shows how much of the garden has been planted – that the numerator "1" counts the part which was planted and the denominator "2" tells how many equal parts the garden is divided into, that is, flowers and vegetables. Label the other side of your garden with the word Vegetables. Together with your child, decide what fraction should be written next to the word vegetables. Have your child label that part of the diagram with ½.

DAY THIRTEEN

Start the seeds for your vegetable garden. If you like, ask your child to identify any fractions which may be on the back of the seed packets. Does she know which is the numerator and which is the denominator?

DAY FOURTEEN

Together with your child, add the rows of vegetables to your garden diagram. If you choose six row of vegetables, draw six equal sized sections of the garden on your diagram. Have your child label each with the vegetable that will be grown there as well as with its fraction of the vegetable bed. When you are calculating the fractions, it will help your child to first decide the denominator – how many equal parts is the vegetable bed divided into? Then count how many rows there will be of each vegetable to determine the numerator. If you like, you can plant the same vegetable in two or more rows so that your diagram may look like this:

zucchini: 1/6
tomatoes: 2/6
eggplant: 1/6
bell pepper: 2/6

DAY FIFTEEN

Go back to your garden diagram. Revisit the calculations for the vegetable bed fractions. See if your child can, without prompting, explain how she came up with each fraction. If not, work through the numbers again. When you are done, show your child that you can double-check your work by counting up all the parts to see if they equal the whole. If you have 6 rows of vegetables, all your numerators should add together to equal 6. For example, you can say to your child, "We have one row of zucchini, two rows of tomatoes, one row of eggplant, and two rows of bell peppers. Does that equal six rows altogether?"

*** Note ***
Time will pass between this day and the next day of the unit, as you wait for your seedlings to be hardy enough to be planted outside. Using your own judgement, revisit the cooking activities, "The Two Brothers", or the garden diagramming activities and review the concepts with your child as needed to keep the understandings clear.

DAY SIXTEEN

Plant your vegetable seedlings outside in their designated rows. Have your child create markers to go at the end of each row stating what vegetable was planted there and how many seedlings were planted. It will be very important that you know how many seedlings you put in each row.

Day Seventeen

Have your child add the vegetables planted yesterday to your garden diagram, NOT by coloring in that section but by placing small colored dots in the sections, one to represent each plant. Now create a large chart to be placed on the wall next to your garden diagram. Fasten the seed packets down the left-hand side of the chart. Next to each seed packet write how many seedlings were planted. Leave room for three additional columns.

Day Eighteen – Writing Fractions

Monitor the seedlings as they grow to see how many die and how many thrive. After several weeks have passed, visit your garden bed and count to see how many plants you have growing in each row. Have your child calculate how many of the seedlings didn't survive the transplanting. On your chart in the schoolroom, have your child write the number of seedlings which survived and the number of seedlings which died in two columns beside each vegetable's information.

Day Nineteen

Have your child add together the two fractions on the seedling chart. Write the number sentences in the final column of the chart. For example, if 4 eggplant seedlings lived and 22 of them died, the number sentence should be 4/26 + 22/26 = 26/26. He should find that the sum of the two fractions should, for every vegetable, be a fraction with the same number as the numerator and the denominator. Don't point this pattern out, let the child see it first. Then explain that this type of fraction is the same thing as a whole. If you have all 26 parts of a thing which was divided up into 26 parts, you have the whole thing. When you add up the number of seedlings which lived with the number of seedlings which died, you will have a number that is equal to the total number of seedlings you planted.

Day Twenty

Create math problems for your child to solve using fractions. Depending on your child's comfort level with fractions, you can work together with your child or have him work independently. Do the work in front of the garden diagram and the seedling chart so he can refer back to them as he works. Depending on the degree to which you want your child to be able to model fractions or solve problems using addition and subtraction of fractions with like denominators, you can continue to give him some problems to work on in later days.

SAMPLE PROBLEMS

These are the types of problems which a second-grade student typically is given regarding fractions.

MODELLING FRACTIONS

Draw a square divided into 3 equal parts. Color 2/3 of the square red.

Draw a set of six circles. 3 of the 6 circles are red. What fraction of the circles are red?

Draw a circle. Divide it into four equal parts. Color one part red. What fraction shows the parts that are red?

Draw a rectangle. Divide it into ten equal parts. Color the first one and the last three red. What fraction shows the parts that are red?

ADDITION AND SUBTRACTION OF FRACTIONS

1. 4/6 + 1/6 =
2. 1/5 + 2/5 =
3. 3/9 + 4/9 =
4. 2/10 + 7/10 =
5. 4/6 – 3/6 =
6. 10/12 – 8/12 =
7. 8/9 – 7/9 =
8. 5/6 – 2/6 =

ASSESSMENT

Assessment for the Fractions Unit is made up of five parts. These parts are:

JOURNAL PAGES

GARDEN DIAGRAM

SEEDLING CHART

SAMPLE PROBLEMS

FINAL PROJECT

As your child'd final project in this unit, have him write a short three page report.

The first page will contain a heading for each type of vegetable planted. For each vegetable, have your child write the number sentence showing the number of seedlings which lived plus the number of seedlings which died. Using graph paper, have him model each fraction by outlining the number of squares which shows how many plants were planted. Have him show the results of the plantings using a different color for each – color the number of squares for the seedlings which lived green and use brown for those which died.

The second page of the report should be titled "Seeds to Plant Again" and will explain his recommendations for next year's vegetable garden. Make sure your child supports his statements using fractions and refers to the data gathered on the seedling chart. The third page of the report should be titled "Seeds Not to Plant Again" and will continue his recommendations for next year's vegetable garden, supporting his statements in a similar way.

Although your child should complete the first page of the report independently, you can modify the second and third pages by having him dicatate his report instead of writing it, as necessary. You will know best what level your child is at regarding compositions.

*** Note ***
Use of the main lesson book: This unit was designed to be taught with the five parts listed above as the assessment components. However, if you are using a main lesson book for Math, you can place some or all of these assignements in it. You can also add additional components, such as drawings and writings to go along with "The Three Brothers", observations of the seedlings as they grow, or telling stories about vegetables and their likes and dislikes based on information from Carrots Love Tomatoes.

FRACTION SKILLS

"PARTS OF A WHOLE" CONCEPT

Does your child understand

- a thing can be divided into parts
- if you have only some of those parts, you have less than the whole thing
- if you have all of those parts, you have the whole thing

RECOGNIZING A FRACTION

Does your child understand

- a fraction is a special number which means you have divided a thing into parts
- a fraction looks like two numbers with a line between them

IDENTIFYING & UNDERSTANDING THE PARTS OF A FRACTION

Does your child understand

- the top number in a fraction is called the numerator
- the bottom number in a fraction is called the denominator
- the denominator tells the number of parts a thing has been divided into
- the numerator tells the number of parts you have
- a fraction with the same numerator and denominator shows a whole

WRITING FRACTIONS

Is your child able to

- model fractions using graph paper
- determine the appropriate fraction to represent something observed
- compose number sentences with fractions
- add and subtract fractions with like denominators

The Two Brothers

Long ago, in a far-off kingdom, there lived two brothers who loved each other dearly and so they went everywhere together. Enumerate was the older brother and, as he was older, he could count. Wherever they went, Enumerate was always counting. Nomen* was the younger and he, like those who are younger, loved to say the name of everything he saw. They made a wonderful team and much enjoyed the time they spent together.

One morning the two brothers decided to go to the bakery in a nearby town to purchase their breakfast. As they walked into the shop, Nomen began to name the delights before them: omelettes, quiches, french toast with syrup, flaky croissants, yogurt and fresh berries, oatmeal, muffins, scones, and caramel pecan rolls.

"Ooh, those caramel pecan rolls look the most delicious," he said.

"I'll count them!" exclaimed Enumerate. "One, two, three, four, five, six. Six. There are plenty for the two of us. Shall we have some of those?"

"No," said Nomen. "I still want to look around some more. How about an omelette? We can have Swiss cheese, cheddar cheese, ham, bacon, sausage, chicken, onions, mushrooms, spinach, red bell peppers or tomatoes."

"Let's see," said Enumerate. "That's eleven choices for our omelette."

"That's too many choices for me," declared Nomen. "I want something more simple for my breakfast."

Nomen looked around the bakery. There was so much delicious food there, it seemed to be overflowing with choices. He looked at the fresh berries.

"I see strawberries and blueberries," he said. "How about some of those?"

Enumerate began to count the basket of blueberries. "One, two, three, four, five, six, seven, eight, nine, ten, eleven..."

When he reached two hundred and thirty-four, Nomen (who had been figiting with boredom after number twenty-five) burst out, "This is ridiculous. Who can choose anything to eat at a place like this? Let's just go home and make ourselves something."

"Alright," said Enumerate, "Let's go home."

When they reached their cottage, Enumerate and Nomen went into the kitchen. Nomen opened the cupboard.

* pronounced "Nahmen" as in "denominator"

“Here is the perfect solution!” he cried. “I have all the ingredients to make some plain bread. No one dislikes bread for breakfast!”

“Fine,” declared Enumerate, “Let’s make bread.” Soon the delicious smell of baking bread filled the kitchen. As the bread sat cooling a little before it could be sliced, Enumerate spoke up.

“Dear Nomen,” he said, “Bread is all very well for breakfast but I’d like something more. Do we have anything to go with our bread?”

“We have lots of choices,” said Nomen, looking in the cupboard, “And I wouldn’t mind having a little more. But you know how I hate to choose. What should we do?”

“I have a plan,” said Enumerate, “Let’s prepare breakfast for one another as a surprise. Then you won’t have to make any choices and I can have the variety for breakfast that I enjoy.” The two brothers were well pleased with this plan and, as the bread was now cool enough to slice, they each put some slices of bread on a plate for the other.

“Who shall go first?” asked Nomen.

“I’ll make your breakfast first,” said Enumerate, “because I am your big brother. I will be happy to do it. Go into the next room and wait for me there.”

Nomen went into the next room as he had been directed. As he sat waiting for his plate to be prepared, he thought of another way to make their game more interesting. When Enumerate entered the room, he found his younger brother blindfolded.

“Your breakfast is ready,” said Enumerate.

“I know, and it smells delicious,” declared Nomen, “But I can’t see it! I’d like to guess what you’ve brought me. I have composed a little riddle for you to solve:

Dear dear Enumerate,
How many foods are on my plate?
Count the first, then all the rest,
And when you’re done, I’ll make my guess.”

“What fun!” exclaimed Enumerate, “That’s an excellent game. I’ll count them and then you can guess what I’ve brought you. One, two, three, four, five. Does that help you?”

“I know there’s bread,” said Nomen, “And I smell honey. We had strawberries in the refrigerator, and I’m sure there’s a glass of milk. But I can’t think what else there might be.”

“Take off your blindfold and see,” laughed Enumerate, and so Nomen did just that.

* pronounced “Nahmen” as in “denominator”

"Cottage cheese," he cried. "What a wonderful healthy breakfast. Thank you!"

"Now it's my turn with the blindfold," said Enumerate, "I'll wait right here for you and then we can eat our breakfasts together."

"Sit and think of a riddle for me while I'm gone," said Nomen and he left the room. Enumerate sat and thought. He could hear Nomen bustling about in the kitchen preparing his food. He couldn't give Nomen the same riddle that Nomen had given him, since Nomen was too young to count. But what was Nomen good at? Enumerate thought and thought and then he had an idea. When Nomen entered the room with the tray of food, he found Enumerate ready for him.

"I have your riddle," Enumerate said, "And here it is:

Nomen, Nomen, name the foods,
You've put upon my tray.
And after that, I'll count for you,
I'll count the things you say."

"What a good riddle," exclaimed Nomen, "I am happy to tell you what I've brought. I gave you some slices of good warm bread, a pat of butter, a little cherry jam, a dish of yogurt, a handful of blackberries and a glass of orange juice. How many things is that?"

"Let me take off my blindfold," said Enumerate, "And we'll see. Two slices of bread, one pat of butter, one pot of jam, one dish of yogurt, six blackberries, and a glass of juice. That's 12 things for my breakfast. And it all looks delicious! Thank you very much."

"It was my pleasure", said Nomen and they both sat and happily devoured their meal.

As time went on, the two brothers became more and more fond of this little game. Every morning they would prepare food for each other. Enumerate would always go first and Nomen would query,

"Dear dear Enumerate,
How many foods are on my plate?
Count the first, then all the rest,
And when you're done, I'll make my guess."

Then Nomen would make a tray of food for Enumerate and answer the riddle put to him,

"Nomen, Nomen, name the foods,
You've put upon my tray.
And after that, I'll count for you,
I'll count the things you say."

* pronounced "Nahmen" as in "denominator"

As the two brothers grew they became older and wiser and soon were known far and wide for their skills, Enumerate in counting and Nomen in naming, and one day King Fraction called them into his royal court. They walked nervously up the long red carpet and came to stand before him and the Queen.

"I have just discovered a new fraction," announced the King, "And I'm extremely proud of it. The problem is, I just can't come up with what to call it. I have heard that Nomen can name any thing in my kingdom! That is why he was sent for. But who is this other fellow?" he asked, peering at Enumerate.

"Sire, this is my older brother, Enumerate," said Nomen, "We travel everywhere together and cannot be parted. When you called for me, he came as well."

"Very well," said the King, "Please begin!"

"Of course" said Nomen, "I am honored to have been asked to help, Your Majesty. Where is this fraction? Simply show it to me and I'll name it for you."

"Why, my new fraction is right here on this table," declared the King in surprise, "Can't you see it?"

Nomen looked down. All he could see was a pile of books by the King's left hand and another pile of books by the King's right hand.

"I only see some books, Sire," said Nomen, "I don't see a fraction at all!"

"Maybe I can help," said Enumerate, stepping forward. "I see five books in the left, three books in the right, and eight books all together. Does that give you a name for your fraction?"

"No, no," said the King impatiently, "I know that they are books and I know that there are eight of them. The five books on the left are the ones that need to be mended, that's all. That is not what I need help with. My beautiful new fraction is 5/8 and I want to give it a name, a brand-new name. The five on the top and the eight on the bottom deserve more distinguished titles than simply 'five' and 'eight' now that they are part of this splendid new fraction."

"Well," said Nomen, "I'm afraid I don't know what to say, your Majesty. To me, they are just books. I'm afraid I'm only good at calling things by their ordinary names."

"And I am only really good at counting," said Enumerate sadly, "I wish that we could be of more assistance."

The Queen suddenly spoke up. "My Dear," she said quietly, "I must confess that I do not at all understand this new fraction. Would you mind explaining it to me?"

* pronounced "Nahmen" as in "denominator"

The King turned to her.

"Not at all," he said. "There are eight books all together. Five of them need to be taken to my librarian to be mended. My fraction is 5/8. The top number tells how many I have counted out to be mended. The bottom number tells how many books there are all together. It's a truly beautiful fraction and I'm quite proud of it! Perhaps some day I will find someone to help me give each part an new and glorious name."

Since they had been unable to help, Nomen and Enumerate were about to leave when suddenly the King called them back.

"You've traveled a long way to see me," he said, "Surely you must be tired and hungry. Stay with us for supper."

"We would be honored, Sire," the two brothers quickly said, and they each found a seat, for supper was about to be served. Enumerate had his trusty blindfold in his pocket, for they had played their breakfast game along their journey to the palace and, on a whim, he brought it out.

"Shall we play?" he asked Nomen softly, not wishing to disturb the others at their table.

"Of course!" replied Nomen promptly, "It's my absolute favorite game. Let me make your plate up for you."

"No," said Enumerate, "I'm the older brother. I should go first. I always go first."

"Agreed", said Nomen and he put on the blindfold and turned his back to his brother. Once the food was ready, Nomen chanted,

"Dear dear Enumerate,
How many foods are on my plate?
Count the first, then all the rest,
And when you're done, I'll make my guess."

Once Enumerate had counted all the foods on the plate and Nomen had made his guesses as to what his brother had chosen for him, Nomen handed the blindfold to Enumerate who put it on. Nomen then began to prepare some dinner for his older brother. The other guests at the table had begun to look at them with some curiosity, for they had never seen this game played before. Nomen finished his task and turned to his brother who said,

"Nomen, Nomen, name the foods,
You've put upon my tray.
And after that, I'll count for you,
I'll count the things you say."

* pronounced "Nahmen" as in "denominator"

The King's attention was suddenly drawn to the spectacle of an entire table of his guests who were not eating their food.

"What's this," he wondered, "Is there a problem with our cook?"

"Oh, no, my Dear," said the Queen, "I believe they are watching something which Enumerate and Nomen are doing. It appears to be some sort of game."

The King called the two brothers up to his table and asked them to explain what they had been doing. And, as soon as they described the game they had invented, the Queen gave a crow of laughter.

"Just the thing!" she exclaimed, "You've given me the idea for the most perfect names for your new fraction, my Dear, and they are as grand as one would wish. Enumerate is always counting things, so the top number of your fraction – the five books you had counted out to be mended – shall therefore be called Numerator. Nomen is always naming things, so the bottom number of your fraction – which names what you were counting, the eight books – shall henceforth be known as Denominator."

"I absolutely agree," proclaimed the King, "Let is be as the Queen has laid forth."

And to this very day, it is so and Numerator always comes first, for that is how it should be.

* pronounced "Nahmen" as in "denominator"