

# Rice is Rice, Right?



Adapted from article by David J. Larwa • *Science & Children* • Vol. 39 • Issue 1

Time	Grade Level	Content Area [s]
Thirty minutes	Grades 3-5	Life Science, Plant Characteristics

## Materials

- *Everybody Cooks Rice* by Norah Dooley
- Six different types of packaged rice
- Paper cups
- Paper plates (white and dark colored)
- Hand lenses
- Science notebook
- Markers
- Ruler

## Objective

Students will observe a variety of types of rice, recording their similarities and differences.

## Activity Outline

- 1 Label the cups with the marker one through six. In each cup, pour one sample of each type of rice. Make several sets of cups of rice so the students can work in small groups.
- 2 Begin a discussion with the class and ask them if they have had rice as part of a meal at home with their family and to describe how the rice is cooked. Allow students to ask questions of each other regarding the different rice dishes.
- 3 Read *Everybody Cooks Rice* by Norah Dooley. Discuss as a class the different types of rice found around the world and how each is used in different cultures and connect it back to rice dishes that the students may have discussed.

- 4 Distribute the sets of different rice to the student groups and ask the students to make observations for each of the rice samples using hand lenses. Use a dark colored plate to view the light-colored rice (to better allow students to see the differences). Students should record and describe the rice's shape, color, size, and texture in their science notebook.
- 5 One of the points in the narrative discusses that regardless of the type of rice, all rice does have a classification of long grain, medium grain, and short grain rice. Share this point with the students along with what defines each.
  - a. Long grain – this type is 4-5 times longer than they are wide.
  - b. Medium grain – this type is 2-3 times longer than they are wide.
  - c. Short grain – Can be confused with medium grain, but is only slightly longer than it is wide.
- 6 Ask the students to return to their observations and see if they can also determine which type of rice grain each sample is.
- 7 Once students have had a chance to examine the different samples, show them an image of a rice grain that has the parts labeled. Share with them the following ideas and asks them to see if they can observe the differences.
  - a. White rice has had the husk, bran, and germ removed.
  - b. Brown rice has had the husk removed.
- 8 Place the rice packages with samples at a learning station on display. Have the students try to identify from their observations what type of rice they described. Older students can gather additional data or information from the packages to include the name of the rice, its observable features, features identified by the packaging, nutrition facts, cooking instructions, and any recipes listed. Then, compare and contrast the information from each of the packages.

## Extensions

### Social Studies

An extension for social studies can be used in this area by asking the students to find the different countries on a world map that are discussed in the story to help them see how many different countries have a rice dish. If student's family backgrounds are from additional countries, ask them to find those on the map as well. Ask students to research where rice is grown in the United States (see internet resources).

### Language Arts

If you were Carrie in the story, have students identify questions they would ask the different families about their rice dish as she looked for her brother.

### Mathematics

Create a graph that lists the different types of rice dishes mentioned in the story and ask the students to use post it notes to create a bar graph. Students should write their name on a sticky note and place it on the graph for each different type of rice dish mentioned that they have tried.

### Science

- Discuss with students the process for growing rice by having them watch the Rice is Growing Time Lapse Video. (see internet resources)
- Ask students to compare samples of rice to other grains that are used in different foods and compare and contrast these different grains.

## Internet Resources

Rice facts information: [www.organicfacts.net/rice-types.html](http://www.organicfacts.net/rice-types.html)

Rice is Growing Time Lapse Video: [youtu.be/tbUVNBSwyLQ](https://youtu.be/tbUVNBSwyLQ)

Diagram of Rice Grain: [www.researchgate.net/profile/Norhaizan\\_Me/publication/324246893/figure/fig1/AS:623813507174400@1525740138574/The-structure-of-a-rice-grain\\_Q320.jpg](http://www.researchgate.net/profile/Norhaizan_Me/publication/324246893/figure/fig1/AS:623813507174400@1525740138574/The-structure-of-a-rice-grain_Q320.jpg)

Where Rice is Grown in the US: [www.thinkrice.com/on-the-farm/where-is-rice-grown/](http://www.thinkrice.com/on-the-farm/where-is-rice-grown/)



## Safety

Check for any possible allergies before beginning this activity.





# Rice is Rice, *Right?*

Who knew that rice  
could facilitate inquiry?

By David J. Larwa



**R**ice is rice, right? What do the following have in common: black-eyed peas and rice, risotto, fried rice, Persian rice with currants, Indian rice flour pancakes, azuki beans and rice with sesame salt, and Rice Krispies®?

They all contain types of rice. If you are a scientific inquirer, the *National Science Education Standards* (National Research Council 1996) states that you look for “diverse ways to study the problem and give an explanation based on the evidence.” I recently found myself on an inquiry adventure after reading a fictional book about rice.

While looking through the children’s section of a bookstore one day, I spied a book that took me back in time—time for dinner. In the book *Everybody Cooks Rice*, by Norah Dooley (1991), it’s nearly dinnertime and a mother sends her daughter, Carrie, out to find her younger brother. At each neighbor’s house, Carrie talks with family members from the countries of Barbados, Puerto Rico, Vietnam, India, China, and Haiti. As each family prepares dinner, Carrie samples a meal from each household while inquiring as to the whereabouts of her brother. Later she returns home to find her brother safe and her mother cooking *risi e bisi* (rice with green peas—a delicious northern Italian dish that was handed down by her great-grandmother).

What did Carrie learn? Carrie had an opportunity to inquire about the world around her. Although she did not know it, Carrie met some of the standards in current educational reform. On her trip around the neighborhood, she communicated with groups of people, was flexible in her thinking, was self-directed, processed information, and used reasoning skills to construct meaning from her environment. She learned each household had a different way

to use rice. Each family had a different recipe (viewpoint); not better, just different.

Carrie used inquiry to look for information and knowledge to solve the problem of finding her brother. In her book *Children’s Inquiry* (1999), Judith Lindfors states: “I define an act of inquiry as a language act in which one attempts to elicit another’s help in going beyond his or her own present understanding.” She later makes the statement, “I believe that inquiry is universal, a part of what it is to be human.”

The essence of learning is inquiry. From birth, children try to make meaning of the world around them. Lindfors points out that children use language for three human urges: “to connect with others, to understand the world, and to reveal themselves within it.” These three urges are social, cognitive, and expressive. Carrie experienced all three while looking for her brother.

### What’s Rice?

After reading the story, I went to the supermarket because I wanted to find out if everybody cooks rice. What I found amazed me. There, on the shelf, I found brown rice, red rice, white rice, converted rice, basmati (bahs-MAH-tee) rice, arborio (ar-BOH-ree-oh) rice, and wild rice, just to name a few. The rice was classified by its grain: long-grain, medium-grain, and short-grain rice.

Curious about this variety, I started to read the back of the packages and was amazed to read that white rice is white because it had the husk, bran, and germ removed; brown rice is brown because only the outer husk was removed. The basmati rice I selected was called the “queen of fragrance.” This long-grain rice is prized for its nutlike flavor and wonderful smell. The package said this rice was “watered by the snow-fed rivers of the Himalayas.” The



**How do we learn  
what we want  
to know?**

Italian-grown arborio rice was shorter and fatter than the others. Its high starch content is what gives the dish risotto its creamy texture.

I bought some rice cakes. While eating one I wondered, “Why are there so many kinds of rice? Why is it important?”

I needed to talk to someone. As Carrie had done in the story, I needed to go to different houses and inquire.

## Ask and Discover

My first stop was the corner restaurant. There I asked the cooks, “Why do you care about different types of rice? After all, rice is rice.” First I got a strange look. Then I got a cooking lesson. Brown rice is used as a side dish, white rice for pudding, basmati rice for pilaf, arborio for risotto, wild rice for stuffings, glutinous rice for Asian dishes, and rice flour is used as a thickener. The type of the rice used is very important to the cuisines from different countries. Each cook’s viewpoint was the same—the success of the dish depends upon the form and attributes of the rice. The special of the day was Chinese food, so I purchased some Fay Chway Chow Fan (emerald fried rice) and continued on my search.

Next I visited a local health food store. I asked the same question, “Rice is rice, right?” I was given another incredulous look. I was told that “many people want healthier food. Rice is low in sodium and has high levels of carbohydrates. Rice has only a trace of fat while containing a balance of eight amino acids that our body needs. In this store people purchase a lot of brown rice. Brown rice helps to reduce cholesterol and is full of nutrients like thiamine, riboflavin, and niacin.” I purchased a pint of spicy brown rice with sprouted spelt (a precursor to modern wheat) from the health food bar and thanked the storeowner for my health lesson.

## Rice Quest!

The hands-on activity below is an economical and simple way to spark the inquiry process in the classroom. In my classroom, we incorporate the book *Everybody Cooks Rice*.

### Materials

- different types of packaged rice (I selected six types of rice with very different qualities to allow for more observations.)
- paper cups
- paper plates (white and dark colored)
- hand lens
- observation sheet or journal
- marker

### Procedure

1. Label the cups with the marker one through six. In each cup pour one sample of each type of rice used. Make several sets for the class so the students can work in small groups.
2. Have the students observe each of the rice selections using the hand lens. Using a dark colored paper plate to view the light colored rice will allow the students to better see the differences. They should record and describe the rice’s shape, color, size, and texture on the observation sheet or in their science journal.
3. At a learning station, place the rice packages with samples from each on display. Have the students try to identify from their observations what type of rice they described.

After the activity, the used rice could be placed in a community pot and fed to outside animals.

Older groups of children can construct a data sheet to collect information from the packaging that came with the rice. The table would include the name of the rice, its observable features, features identified by the packaging, nutrition facts, cooking instructions, and any recipes listed. They can then compare and contrast the information obtained from the packaging.

### Creative Ideas for Further Learning


- Ask parent volunteers to prepare one of each of the rice types and have a rice tasting party.
- Ask each student to bring in a favorite rice recipe. Create a class cookbook for each student to take home.
- Investigate different websites to collect new information to share with the class. Two sites of particular interest are [www.riceworld.org](http://www.riceworld.org) and [rgp.dna.affrc.go.jp/](http://rgp.dna.affrc.go.jp/). The first site is for the International Rice Research Institute located in the Philippines; the other is from the Rice Genome Research Program housed in Japan.



## Grains of History

At the local university I spoke with a professor of botany. I told her of my recent visit to the supermarket. “So why are there about 20 varieties of rice, including wild rice?” She gave me a puzzled look and responded,





# What is the true essence of learning?

As I walked across campus eating another rice cake, I ran into a history professor I had as an undergraduate. He wondered what I was doing on campus. I told him and made the mistake of asking him, “Rice is rice, right?”

He gave me a grin. “Of course not! How can you say rice is just rice? Rice feeds more people in the world than any other grain. We have archaeological digs in places like India and Thailand where rice has been radiocarbon dated from 5000 B.C. to 6000 B.C. We know when Buddhism went from the Indian subcontinent to the Far East it brought the practice of eating rice. Rice is so important in China and other Far Eastern countries, the word for rice and food is the same.”

“In fact, most people don’t realize that rice has been produced in the United States for some 300 years. Rice even played a role in the American Revolution. The British, during the occupation of several southern ports, shipped all the rice seed back to England. This led Thomas Jefferson to travel to Italy; and, well, that’s a whole different story.” In his most professorial tone he stated, “Needless to say, rice has had an important role in the history and development of mankind.” He also added with a smile, “By the way, my daughter got married last month. Why do you think we threw rice? It comes from an old Chinese custom, to bring the couple good luck and many children.”

He handed me back the rice cakes I had dropped. I thanked him for the information; and, as he walked on, he yelled, “Remember the old Chinese saying, ‘*How Fu Lan Wai Moe Mic Ju?*’” (“What’s the use of knowing how to cook rice when there isn’t any rice to cook?”)

## “Essential” Learning

What did he mean, what’s the use of knowing how to cook rice when there isn’t any rice to cook? My head was full. My day had started with the reading of a children’s book and was followed by my inquiry about different types of rice. Then I had discussions and interactions with several different individuals. Although I had gained new knowledge, I found I also had more questions.

Each person had different experiences and knowledge about rice, and they used different tools to understand rice. Their unique experiences, knowledge, and tools helped to shape their viewpoint. Finally, their viewpoint allowed me to better understand the world in which I live. I will never view rice the same way.

Perhaps the true essence of learning is inquiry. My inquiry! It comes not so much from the question but rather from the interaction with others all the while

“Actually, there are more than 40,000 different varieties of

rice in the world. The scientific name for rice is *Oryza*. Rice was first developed from wild grasses that are found in the areas of Asia and Indochina. Did you know that in Asia the per capita use of rice is about 180 kilograms per year? In the United States it’s about 4.5 kilograms per year.”

She continued, “I’m also interested in the ecology of rice and land use in the United States. I am pleased with the fact that rice production in states like Texas, Arkansas, and California provides additional habitat for waterfowl.”

“By the way, wild rice (*Zizania aquatica*) is not a type of rice. Rather it is the seed of an aquatic grass. *Zizania* means weed, and *aquatica* means aquatic. Aquatic weed—science is very good at naming things.”

On my way out, the professor gave me a copy of her grandmother’s wild rice stuffing recipe. Since she grew up in the boundary waters area of Minnesota, it was a family favorite.

### National Science Education Standards

Engaging students in the rice and pebble investigation fulfills the *National Science Education Standards’* Content Standard A: Science as Inquiry (all grades); Content Standard G: Science as a Human Endeavor (all grades); and Teaching Standard B, which states, “Teachers of science guide and facilitate learning.”

trying to understand the world—in the end, to better understand myself.

## Inquiry for Students

How might a teacher lead a class on a similar inquiry experience? For starters, teachers can use a book, such as *Everybody Cooks Rice*, to introduce, reinforce, or conclude the inquiry process of a hands-on experience. Who knew that such a basic food as rice could facilitate inquiry? For more activity ideas that use rice, see the box on page 25.

I frequently employ another one of my “favorite” books, *On My Beach There Are Many Pebbles*, by Leo Lionni (1961), to make connections to discovery science lessons with my students. I give children pebbles to observe and touch. Using their senses, students can draw and describe the pebbles. After allowing them to ask questions and explore possible answers, we read the book, and pebbles never look the same to them again.

In my experience, inquiry in the classroom can take many forms. It can begin with asking a simple question, reading a book, singing a song, or doing a hands-on science lesson. We need to model for students of all ages the notion that we inquire to get information, and this information helps us to better understand the world in which we live. Often this new knowledge makes us ask even more questions. Our point of view on any topic is based upon our prior knowledge and experiences.

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## Resources

- Brown, L. 1970. *Grasses: An Identification Guide*. Boston: Houghton Mifflin.
- Donovan, M.D. (Ed.) 1996. *The New Professional Chef—The Culinary Institute Of America*. New York: Van Nostrand Reinhold.
- Dooley, N. 1991. *Everybody Cooks Rice*. New York: Scholastic.
- Herbst, S.T. 1990. *Food Lover's Companion*. Hauppauge, N.Y.: Barron's Educational Series.
- Jaffrey, M. 1999. *World Vegetarian*. New York: Clarkson Potter.
- Lindfors, J.W. 1999. *Children's Inquiry*. New York: Teachers College.

For other ways to generate students' interest in science inquiry, check out the book *Constructing Early Childhood Science* by David Jerner Martin. For a review of this work, see NSTA Recommends beginning on page 46, or visit [www.nsta.org/recommends](http://www.nsta.org/recommends).

# Why is it important to ask questions?

- Lionni, L. 1961. *On My Beach There Are Many Pebbles*. New York: Mulberry.
- National Research Council. 1996. *National Science Education Standards*. Washington D.C.: National Academy.
- Onstad, D. 1996. *Whole Foods Companion: A Guide for Adventurous Cooks, Curious Shoppers, and Lovers of Natural Foods*. White River, Vt.: Chelsea Green.
- Trager, J. 1995. *The Food Chronology: A Food Lover's Compendium of Events and Anecdotes from Prehistory to the Present*. New York: Henry Holt.

## Additional children's books related to the topic

- Brazell, D. 1991. *Cleversticks*. New York: Crown.
- Demi. 1997. *One Grain of Rice: A Mathematical Folktale*. New York: Scholastic.
- Gibin, J.C. 1987. *From Hand to Mouth: Or, How We Invented Knives, Forks, Spoons, and Chopsticks and the Table Manners to Go with Them*. New York: Harper and Row.
- Pittman, H.C. 1986. *A Grain of Rice*. New York: Hastings House.
- Perrone, D. 1994. *The Rajah's Rice: A Mathematical Folktale from India*. New York: W.H. Freeman.
- Roth, R. 1997. *Mama Provi and the Pot of Rice*. New York: Atheneum.
- Say, A. 1984. *How My Parents Learned to Eat*. Boston: Houghton Mifflin.
- Sendak, A. 1962. *Chicken Soup with Rice*. New York: Harper Trophy.
- Young, E. 1979. *White Wave: A Chinese Tale*. New York: Gulliver Books.